Competition Program—Small Tile House—Page 116

THE BRICKBVILDER

PUBLIC LIBR
No.

AN ARCHITECTVRAL MONTHLY

VOL. 21

APRIL
1912

NO. 4

PVBLISHED BY ROGERS & MANSON
EIGHTYFIVE WATER STREET BOSTON MASS.

TRADE MARK

Tapestry Brick

Reg. U.S. Pat. Off.

The Most Artistic and Permanent Building Material in the World

There is only one "Tapestry" Brick. It is made exclusively by Fiske & Co. Inc. Our trade mark "Tapestry" is branded on each brick. It stands for the highest product of our skill and 45 years experience. It protects you against substitution.

"Tapestry" Brick has been used by leading architects on residences, churches, libraries, hospitals, club houses, schools, fraternal buildings, and high grade apartments.

FISKE & COMPANY INC
FACE BRICKS } ESTABLISHED IN 1864
FIRE-BRICKS }

BOSTON, 28 Arch St. NEW YORK, Arena Bldg.

NEW YORK
1170 Broadway
BALTIMORE
American Building
WASHINGTON
Home Life Building

O. W. KETCHAM

Master Builders Exchange
PHILADELPHIA

Front Brick Enameled Brick
Hollow Tile Fireproofing
Roofing Tile

ARCHITECTURAL TERRA COTTA

Works: Crum Lynne, Pa.

Sweet's Index, pages 116-117

GENUINE NEW ENGLAND "HARVARD" BRICKS

FRONT **BRICKS** ENAMELED

ARTISTIC FACE BRICKS
VITRIFIED HOLLOW BUILDING BLOCKS

Carter, Black & Ayers

CENTURIAN BUILDING
1182 Broadway
NEW YORK

PFOTENHAUER-NESBIT CO.

St. James Building, Broadway, Cor. 26th St., New York

IMPERVIOUS
FRONT BRICK

In Red, Buff, Gray, Mottled, White, Etc.
Enameled Brick, Roofing Tiles, Paving Clinkers, Etc.
Genuine "KITTANNING" Brick
Genuine "HARVARD" Brick

Atlantic Terra Cotta

"OTHER things being equal," said the Architect, "give it to the Atlantic Company on the ground of Quality."

"Other things being equal," said the Contractor, "give it to the Atlantic Company on the ground of Service."

We got it.

Atlantic
Terra Cotta Company
1170 Broadway
New York

Booklet on request

THE AMERICAN TERRA COTTA AND CERAMIC COMPANY

Architectural Terra Cotta

CHICAGO - ILLINOIS

GRUEBY FAIENCE & TILE CO.

BOSTON, MASS.

Non-Slipping Clay Tiles

PATENTS PENDING

12 x 12 Quarries in Greys and Variegated Reds

Also other Sizes and Colors

The Hartford Faience Co.

HARTFORD, CONN.

NEW YORK
814 Flatiron Building
BOSTON
Old South Building

ARCHITECTURAL FAIENCE
(All Colors)
FAIENCE MANTELS
FAIENCE TILE AND BRICK

Write for our new catalogue.

ROOKWOOD

Architectural Faience

MAT GLAZES IN ALL COLORS
ABSOLUTELY PERMANENT
EXTERIOR AND INTERIOR

THE ROOKWOOD POTTERY CO.

CINCINNATI, OHIO

New York Office - - 1 Madison Avenue

Brick, Terra Cotta & Tile Co.

M. E. GREGORY, PROPRIETOR

MANUFACTURERS OF
ARCHITECTURAL TERRA COTTA

Works and Main Office: CORNING, N. Y.

NEW YORK - - - - - E. H. THOMAS, 1123 Broadway

AGENCIES
All the Principal Cities

Conkling-Armstrong Terra Cotta Co.

Manufacturers of
Architectural Terra Cotta

Works, PHILADELPHIA

OFFICES
Builders' Exchange, PHILADELPHIA
1133 Broadway, NEW YORK

PUBLIC LIBR...
No. ......
COLUMBUS

THE BRICKBUILDER

AN ARCHITECTURAL MONTHLY

VOLUME XXI APRIL 1912 NUMBER 4

PUBLISHED BY

ROGERS & MANSON - - - - Boston, Massachusetts

Entered at the Boston, Mass., Post Office as Second-Class Mail Matter, March 12, 1892.
Copyright, 1912, by ROGERS & MANSON

Subscription price, mailed flat to subscribers in the United States, Insular Possessions and Cuba	$5.00 per year
Single Numbers	50 cents
Subscription price, mailed flat to subscribers in Canada	$5.50 per year
To Foreign Countries in the Postal Union	$6.00 per year

SUBSCRIPTIONS PAYABLE IN ADVANCE

For sale by all news dealers in the United States and Canada. Trade supplied by the American News Company and its branches.

ADVERTISING

Advertisers are classified and arranged in the following order:

	PAGE		PAGE
AGENCIES — CLAY PRODUCTS	II	BRICK ENAMELED	III and IV
ARCHITECTURAL FAIENCE	II	BRICK WATERPROOFING	IV
ARCHITECTURAL TERRA COTTA	II and III	FIREPROOFING	IV
BRICK	III	ROOFING TILE	IV

Advertisements will be printed on cover pages only.

CONTENTS

PLATE ILLUSTRATIONS

FROM WORK BY

ANDREWS, JAQUES & RANTOUL; GROSVENOR ATTERBURY; J. E. R. CARPENTER; HARRY CREIGHTON INGALLS AND F. BURRALL HOFFMAN, JR.; MAURAN, RUSSELL & CROWELL; ALBERT PRETZINGER; MATTHEW SULLIVAN.

LETTERPRESS

		PAGE
HOSPITAL AT GUADALAJARA, MEXICO		Frontispiece
THE COMPLETE ANGLER OR COMPETITIONS ANCIENT AND MODERN.—IV	*Hubert G. Ripley*	91
DESIGN FOR A HEATING AND VENTILATING SYSTEM, EIGHT-ROOM SCHOOL BUILDING.	*Charles L. Hubbard*	95
DISTINGUISHED ARCHITECTURE AS A PRECEDENT.—II	*C. Howard Walker*	99
COMMEMORATIVE MONUMENTS.—III	*H. Van Buren Magonigle*	103
INSURANCE EXCHANGE BUILDING, CHICAGO, D. H. BURNHAM & CO., ARCHITECTS		106
EDITORIAL COMMENT AND MISCELLANY		110
DETAILS OF TERRA COTTA HOLLOW TILE CONSTRUCTION		115
COMPETITION PROGRAM, SMALL TILE HOUSE		116

NOTICE.—The regular mailing date for THE BRICKBUILDER is the 25th of the month; for instance, the January number was mailed January 25th. The Post Office Department now sends the larger part of the editions of all publications by freight, and this requires an additional time for transportation of from two to eight days, depending upon the distance of the distribution point from the publication city. The publication date of THE BRICKBUILDER will be moved forward gradually so that copies for a given month will reach subscribers even at distant points within that month.

HOSPITAL AT GUADALAJARA, MEXICO.

THE COMPLETE ANGLER OR COMPETITIONS ANCIENT AND MODERN

BY HUBERT G. RIPLEY.

IV.

"IN THAT large and noble city of the Greeks, Ephesus," says Virtruvius in one of his Proems on ethical culture as practised in former times, "an old law, it is said, was established by the ancients; of which the conditions were severe, but not unjust: for the architect, when he received the charge of a public building, was obliged to deliver an estimate of the expense, and assign over his goods to the magistrates, till the work should be completed. This done, when the expense agreed with the estimate, he was rewarded with decrees and honors; also, if no greater sum than a fourth part more was expended in the works, it was added to the estimate, and supplied by the public; nor was any penalty incurred: but when more than a fourth was expended, his goods were seized, to make up the sum. I wish, to the immortal gods, that this law were established among the Roman people, not only in public but also in private edifices, that the unskilful might not commit impositions with impunity: for those only who are skilled in the knowledge of the art, and are without doubt really professors of architecture, should be employed; nor be suffered to lead fathers of families into profuse expenses, but be driven from among the good: and that architects themselves, from the fear of losing their property, might be obliged to be more careful in making their estimates; so that proprietors might, with what they had prepared, or a little more, discharge the cost of building. For those who can provide four hundred will cheerfully add another hundred; but if they be encumbered with the addition of one half, or more, they lose hopes; and becoming dispirited with the expense, and loss of their property, are forced to desist."

If the above, taken in connection with the following incidents which we shall presently relate, collated with scrupulous accuracy and painstaking exactitude, give additional zest to the student's survey of Hellenic Art, "a correcter and deeper insight into the private life, a look, as it were, behind the *postscenia* of a people whose public virtues and vices we are too apt to pronounce judgment on with reference solely to the universal history of the world and of nations" (to quote the words of Böttiger), we shall feel more than repaid for the long hours of nocturnal study and systematic research, necessary in a work of this character, and an enviable result will have been obtained.

That the Athenian was a creature of impulse, pullulating with nature and vivacity, clear of wit, strong and virile, studious as by intuition, quick to seize whatever advantage the occasion offered, has been proved many times. Oratory, even in those days, was sometimes the deciding factor in carrying out important architectural schemes. Omar aptly says, "A hair perhaps divides the False and True"; and this slender thread, this tenuous filament, sensitive to the slightest breeze, capable of being wafted hither and yon by the merest zephyr, a trifle light as hair in fact, may be sufficient to turn the scales. Undoubtedly, Æsophagus, the orator architect, justly renowned for his charming little Temple of the Winds, would never have been awarded first place in the competition for that building, had he not had such a magnificent flow of words, such an eloquent command of language, such skill in delectable insinuation, that the jury just had to give him the prize as the only logical solution of a perplexing situation.

You see while this, strictly speaking, was not a big competition,

FIG. XI.

Rhododaphne's Temple in the sacred grove of Ladon, originally designed by Petrolius of Napthos, of which only the encarpi have lasted to the present day.

many able architects competed for it, including such men as Argelius, whose monograph on the Corinthian order is still, even in these days, regarded as a masterpiece of romantic imagery; Epimachus, the wealthy Athenian architect, who had over sixty draftsmen in his office and important work under construction aggregating over one hundred talents; Syrophœnix, whose specialty was pergolas and palestræ (it was from Syrophœnix, offices, by the way, that Phryne came; she was his private stenographer and very rapid, and it almost broke Syrophœnix's heart when she left); and Anthemion the Ladon, a young man of great promise and a fine judge of Chian, who afterwards went into partnership with Acroterius and won first prize in the competition for the Portico Heptaphonos. Besides the above, many less eminent men such as Nexaris, Theocydes, Demophilos, Petrolius of Napthos, Pollis, Leonides, Silanion, Melampus, Sarnacus, and Euphranor submitted sketches.*

Æsophagus got the jump on them all, though, by sending in a set of charmingly rendered drawings on papyrus, with a stylus perspective on a large wax tablet, and a description traced with the purest Athenian characters in iambic pentameter. This description he insisted on reading himself to the jury in a beautifully modulated voice with appropriate gestures, and at times with dramatic fervor. As the reading went on and the text called for it, he became completely carried away with his own eloquence and the noble sound of the sonorous Greek labials and stertorous aspirates; now soft and low, like the crooning of the summer waves lapping the smooth pebbles of the Arcadian shore, now full and strong, soaring to Parnassan heights like the majestic eagles of Mount Pentelicus, again keen and swift with telling effect, like the javelins of the Spartan hoplites.

FIG. XII.

Philo's scheme for the port of Rhodes partially restored by Potage Condé, showing the ruins of the Portico Heptaphonos in the foreground.

The jury sat as if spellbound. The professional advisor became hot and cold by turns, and great beads of perspiration stood out on his forehead and rolled unheeded down his neck inside his chiton. Slowly the eloquence worked its magic spell until the listeners began to grow numb around the hips, and as the peroration ended the buzzing of a fly seemed like a brutal interruption to the hushed silence that for a moment greeted the orator. Then with husky voice, surcharged with emotion, the chairman put the question. With one accord the jury shouted "*Io pæan Æsophagus!*" while outside Argelius, Epimachus, Syrophœnix and the others gritted their teeth, bit their nails to the quick, and consigned Æsophagus to the Erinnys, or the remotest estuaries of the Styx, preparatory to unfolding their faces and greeting the winner with hollow sounding congratulations.

Virtruvius relates an incident of somewhat later date concerning the rise to fame of the talented and trusted architect of Alexander the Great.

"At the time that Alexander was conquering the world, Dinocrates, the architect, confiding in his knowledge and genius, and being desirous of obtaining the royal commendation, left Macedon, and repaired to the army. He carried with him letters from his relations and friends in his own country, to the nobles of the first rank, that he might thereby more easily gain access. Being favorably received, he requested to be immediately presented to Alexander; they gave him many promises, but made delays, pretending to wait till a proper opportunity should offer. Dinocrates, therefore, suspecting that he was derided, sought the remedy from himself. He was very large of stature, had an agreeable countenance, and a dignity in his form and deportment. Trusting to these gifts of nature, he clothed himself in the habit of an host,† anointed his body with oil, crowned his head with boughs of poplar, put a lion's skin over his left shoulder, and holding one of the claws in his right hand, approached the tribunal where the king was administering justice. The novelty of the appearance, attracting the notice of the people, occasioned Alexander also to see him, who, wondering at the sight, commanded way to be given, that he might approach. Alexander then demanded who he was; Dinocrates replied, 'I am a Macedonian architect, who comes to thee with ideas and designs, worthy of the greatness of thy fame; I have formed a design to cut Mount Athos into the statue of a man, in whose left hand shall be a large city, and in his right, a basin, which shall receive all the rivers of the mountain, and again discharge them to the sea.' Alexander, delighted with the idea, immediately inquired if the country adjacent would produce sufficient food for the sustenance of the inhabitants. When he understood that

* *cf. Charondas, apud Stob. Tit. XLIV 40.*

† *Glad rags.*

provision must be conveyed thither by sea, he replied: 'Dinocrates, I discern the excellence of thy design, and am pleased with it; but I consider that whoever should establish a colony in such a place would hereafter be justly blamed; for, as a new-born infant cannot be nourished, or gradually reared to the different stages of life, without the milk of the nurse, so neither can a city be peopled, nor can it thrive, without fertile land and plenty of provision; however, as I approve the design, though I disapprove the place, I will have thee attend me, that elsewhere I may employ thee.' From that time, Dinocrates remained with the king, and attended him into Egypt. There Alexander, observing a spot which had an haven formed secure by nature, an excellent place for an emporium, the adjacent country through all Egypt being fruitful, and having the accommodation of the river Nile, ordered him to build the city now called from his name Alexandria. Thus, by the means of a graceful countenance and dignity of person, Dinocrates became eminent."

It is not wise, therefore, to rely wholly upon sheer merit in design for winning competitions, nor are accidental and extraneous aids, adventitious and factitious accessories to be despised. While the Hellenic architect seemed to have a uberous pantechnicon of panurgy stored within his bean, and from the ends of his facile fingers flowed a continuous stream of chaste and gracious details — "a happy dilitescency" of ideas — he did not disdain on occasion, when an important commission was at stake, to go into cahoots with some gifted wordsmith.

Omnes declinant ad ea quae luera ministrant
Utque scient, discunt pauci plures ut abundent,
Sic te prostituunt, O virgo Scientia, Sic te.
Venalem faciunt, castis amplexibus aptam,
Non propter te querenter, sed lucra pro te;
Ditarique volunt potius quem philosophari.—*Ovid de Vetula*

FIG. XIII.

Perspective study taken from the competitive drawings submitted by Euphranor for the Acropolis ot Alabanda in Caria. See Figs. XIV and XV for further studies of this same Acropolis.

Let us digress for a moment and again quote Virtruvius to make brief mention of that charming little idyl concerning the three fundamental orders of great architecture. Most writers prefer a more sesquipedalian explanation of the development of style, when right at hand, at the fountain head, so to speak, we have all the data needed presented in a simple straightforward manner, which is in substance as follows:

"From the formation of the three kinds of columns, arise the denominations, Doric, Ionic, and Corinthian; of which the most ancient and first invented is the Doric; for, when Dorus, the sun of Hellenus and the nymph Opticos, reigned over all Achaia and Peloponnesus, the temple of Juno, in the ancient city of Argos, was erected and this order happened to be used in the fane. The same order was also used in the other cities of Achaia, before the laws of its symmetry were established.

"Afterward, when the Athenians, according to the responses of Apollo of Delphos, and the common consent of all Greece, transplanted, at one time, thirteen colonies into Asia, appointing to every colony a leader, they gave the chief command to Ion, the son of Xuthus and Creusa, whom also the Delphian Apollo acknowledged for his son. These colonies he conducted to Asia, seized on the territory of Caria, and there founded many large cities, as Ephesus, Miletus, Myunta (which last was formerly overflown with water, and its rites and privileges, by Ion, transferred to the Milesians), Priene, Samos, Teos, Colophon, Chios, Erythræ, Phocis, Clazomenaw, Lebedus, and Melite. This latter, on account of the arrogance of the citizens, was destroyed in the war declared against it, by the unanimous determination of the other cities, and, in its place, by the favor of King Attalus and Arsinoe, the city of Smyrna was received amongst the Ionians. When these cities extirpated the Carians and Leleges, they, from their leader Ion, called that territory Ionia.

"There they began to erect fanes, and constitute temples to the immortal gods. First, they erected the temple of Apollo Panionios, in the manner they had seen it in Achaia; which manner they called Doric, because they had seen it first used in the Dorian cities. In this temple they were desirous of using columns; but being ignorant of their symmetry, and of the proportions necessary to enable them to sustain the weight, and give them a handsome appearance, they measured the human foot, and finding the foot of a man to be the sixth part of his height, they gave that proportion to their columns, making the thickness of the shaft at the base equal to the sixth part of the height, including the capital. Thus the Doric columns, having the proportion, firmness, and beauty of the human body, first began to be used in buildings.

"Afterward, to construct the temple of Diana, they sought a new order from the same traces, copying the graceful-

ness of women, and making the thickness of the columns an eighth part of their height, in order to give them a taller appearance. The folds of the base they designed for the shoe; the volutes of the capital for the tresses of hair, drooping to the right and left; the cymatium and encarpi, for the locks disposed to ornament the forehead; and the channels of the shaft for the plaits of the matrons' garments. Thus arose the invention of these two different orders: one of a masculine appearance, naked and unadorned; the other imitating the slenderness and fine proportion of women. But posterity, improving in ingenuity and judgment, and delighting in more graceful proportions, fixed the height of Doric columns at seven times their diameter; and of the Ionic, at eight and a half. This latter order was called Ionic, because it was first used by Ion.

FIG. XIV.

"The rose and myrtle blend in beauty round Thespian love's hypæthric fane;"—Temple midway between the Pynx and the Agora, Acropolis of Alabanda.

"The third, which is called Corinthian, is in imitation of the delicacy of virgins; for, in that tender age, the limbs are formed more slender, and are more graceful in attire. The capital is reported to have been thus invented: A Corinthian maid, just marriageable, being seized with a disorder, died: after her interment, her nurse collected, and disposed in a basket, the toys which pleased her when alive, carried it to the tomb, placed it on the top, and, that it might endure the longer in the open air, covered it with a tyle. The basket chanced to be placed over the root of an acanthus, which, being thus depressed in the middle, the leaves and stalks, in the spring season, issued outward, and grew round the sides of the basket; and, being pressed by the weight at the angles of the tyle, were made to convolve at the extremities, like volutes. At that time Callimachus, who, for his ingenuity and excellence in the arts, was, by the Athenians, named Catatechnos, happening to pass by this tomb, took notice of the basket, and being pleased with the delicacy of the foliage growing around it, as well as the novelty of the form, made some columns near Corinth, according to this model, and from thence established the symmetry and determined the proportions of the Corinthian order."

In those days, even as now, the truly great architects did not fear to employ the very best talent wherever they might find it, and the most competent draftsmen were left free to develop the personal equation. The Romans slipped it over the Greeks a little bit in executive ability, and their offices, often with as many as two and three hundred draftsmen burning the midnight oil for weeks on a stretch, were excellently equipped for competitions of every character. These draftsmen were culled from every known corner of the civilized and uncivilized world. Here really for the first time in history there might be seen, peacefully working side by side on the same drawing board and stealing each others' thumbtacks, the bellicose inhabitant of Taurica Chersonesus, and the olive-skinned hematherm of Libya Occidentalis.

The limits of a magazine article necessarily involve certain Procrustian operations not binding on the pragmatical reflections of philosophical historians. Greece being divided into many small states, each having customs and habits peculiar to itself, it would be manifestly impossible to do justice to them all, and we can but indicate in a general way the trend of ideas, touching lightly here and there on some salient point. For fuller and more complete information we would refer the reader to Theophrastus, Strabo, Athanæus, Aelian, Diogenes, Laertius, Dio Chrysostom, Philostratus, and even Alciphron and Artemidorus, in addition to others already mentioned. To be really appreciated all these authors should be read only in the original tongue, otherwise the true spirit of these times, the delicate nuances and subtle blendings of the Attic *timbre* will be lost, and it will be difficult to form a just estimate of "A people who conceived all that was beautiful in art and profound in philosophy; who became the instructress of all sciences and arts; the teacher of her own times and posterity."

FIG. XV.

The port of Alabanda, showing how the sea formerly extended far inland.

Design for a Heating and Ventilating System for an Eight-Room School Building.

CHARLES L. HUBBARD.

THE first two articles in the present series on Schoolhouse Ventilation have dealt with the subject in a general way, showing how to decide upon a system to meet the local conditions in any particular case, and giving simple rules and formulæ for determining the size of different parts of the heating and ventilating apparatus. In the present article an actual problem will be worked out in detail by the methods already given, showing the way of preparing the plans and specifications for obtaining competitive bids.

General Scheme. An eight-room building has been chosen, of the general form shown in Figs I, II, and III. The system employed uses a centrifugal fan for the air supply, while the discharge ventilation is by gravity flow assisted by the slight pressure in the rooms due to the fan. The class rooms are heated by means of supplementary heaters or stacks placed in the airways at the bases of the fresh-air flues. Small rooms and entrance corridors are provided with direct radiators. The main corridor on the first floor has two foot-warmers, the same being connected with the fan, which provide fresh air for both the lower and upper corridors. Basement toilets and corridors are heated by means of overhead circulation coils hung about 18 inches from the ceiling.

Plans. The heating plans are best worked out in connection with the architect's regular ¼-inch scale floor plans, starting them before partitions are permanently fixed, so that minor changes required for the best arrangement of flues, heating chambers, boiler and coal rooms, etc., may be settled upon and incorporated in the architect's drawings. Tracings are made from the regular floor plans, leaving out all dimensions and architectural details which do not concern the heating system, as these add needlessly to the cost of the drawings and are apt to be more or less confusing to the steam fitter. It is necessary in laying out a heating system that the draftsman have at hand a set of the architect's plans containing many of the details of construction in order to avoid conflict with other parts of the work, but it is not necessary to incorporate these details in the heating plans themselves. The simplicity of these plans, so far as architectural features are concerned, are evident in Figs. I, II, and III. The best scale for the floor plans is ¼ inch to the foot. Sometimes in case of large buildings ⅛ inch to the foot is large enough for the upper floors, but basement plans should never be less than the larger size as there should be ample room for all dimensions and notes without interfering with the details of the system. Small sections, elevations, etc., showing various details of construction, are very useful to the fitter and often save much annoyance to both architect and contractor. These may be made either ¼ inch, ⅜ inch, or ½ inch to the foot, according to the amount of detail to be shown.

Order of Design. All of the more important computations should be made before the plans are commenced. These include the following and may well be worked out in about the order given. Air supply to each room, total air supply, size and speed of fan, power of motor or engine, size of supply flues, size of vent flues, size of main or primary heater, size of secondary heater for each class room, size of direct radiators and coils for remaining rooms, boiler power, boiler dimensions, and details. Sizes of air connections between the fan and the uptake flues and the steam and return piping cannot be determined until after they have been located and drawn in.

Computations. The various computations noted above will now be worked out by the general methods given in the two preceding articles.

Air Supply. Fresh air is to be supplied to eight class rooms and two corridors. Counting the two corridors equivalent to one class room, and allowing 2,000 cubic feet of air per minute per room (fifty pupils at 40 cubic feet each), gives a total of $2{,}000 \times 9 = 18{,}000$ cubic feet of air per minute, which we will call 20,000 in round numbers.

Fan and Engine. Looking in Table 1 of the second article in this series, it is found that a 6-foot fan running at a speed of 200 revolutions per minute will deliver 20,800 cubic feet of air under the average resistance found in this class of work, and is the size to be used in the present case.

The power required for driving the fan at this speed is given by the same table as 10 horse power. As it is desired to return the condensation to the boilers by gravity, without the use of pumps, the radiators must be supplied with steam at boiler pressure, which should not exceed 15 pounds per square inch. This pressure calls for an engine having a cylinder 15 inches in diameter, with 8-inch stroke, and running at 250 revolutions per minute. A horizontal belted engine is to be used, with a pulley ratio of $250 : 200 = 1.25$ to give the proper speed to the fan. The fan foundation should extend about 4 inches beyond the base on all sides and be 16 inches deep for a solid earth footing. The engine foundation should be 32 inches in depth.

Supply Flues. Allowing a velocity of 600 feet per minute in the supply flues to the class rooms, it calls for an area of $2{,}000 \div 600 = 3.33$ square feet, which will be taken in whole numbers as 3, thus giving a slightly higher velocity which is easily allowable. The maximum velocity through the registers should not exceed 400 feet per minute, which fixes the minimum area in the present case as $2{,}000 \div 400 = 5$ square feet. The actual dimensions used are $18'' \times 24''$ for the flues, and $24'' \times 30''$ for the registers or grilles.

Vent Flues. The area of the vent flues in a fan system should be approximately 5/3 that of the supply flues, which is 5 square feet in this case. Making the smaller dimension 18 inches, this calls for a flue $\frac{5 \times 144}{18} = 40$ inches in length. The area of the grille may be made $18'' \times 40''$.

Main Heater. This is computed by the formula, $S = \frac{C \times 1.3}{1500}$, in which C is the cubic feet of air per hour to be raised from a temperature of 0 to 70 degrees, and S the square feet of radiating surface required in the main heater.

Substituting the value of C in the above we have, $S = \frac{(20,000 \times 60) \times 1.3}{1500} = 1,040$ square feet. If pin radiators are used, rated at 15 square feet per section, $\frac{1040}{15} = 70$ sections will be required. The heater is divided into six separately valved groups or sections, with two of them so arranged that either live or exhaust steam from the engine may be used in them.

Heat Loss. The next step is to compute the net outside wall and window surface for all of the rooms to be heated. The dimensions may be scaled directly from the drawings with sufficient accuracy if reasonable care is taken. The rooms should first be numbered and a corresponding list made with the computed wall and glass surface placed after each, as follows:

	Room No.		Wall, Square Feet.	Glass, Square Feet.
Basement Floor	1	Corridor	120	30
	2	Corridor	120	30
	3	Toilet	200	50
	4	Toilet	200	50
First Floor	5	Entrance	350	110
	6	Office	230	40
	7	Class Room	460	200
	8	Class Room	460	200
	9	Teachers'	230	40
	10	Entrance	350	110
	11	Corridor	0	0
	12	Class Room	460	200
	13	Class Room	460	200

The second floor is a duplicate of the first, except the entrances No. 5 and No. 10 are replaced by the stairways and supply rooms No. 14 and No. 19. The wall and window surfaces of the stairways are included in those of the entrances below, and all of the radiating surface placed on the first floor. This leaves the stair landings free from radiators and gives equally good results, as the warm air will rise readily to the upper floor through the stair wells. The entrance radiators are supplemented by the foot-warmers, which also help warm the stairways and overcome cold drafts from the outside doors. No special air supply is provided for the upper corridor, the full amount for both floors being supplied to the lower rooms and the stairways being depended upon to carry the fresh air to the upper story.

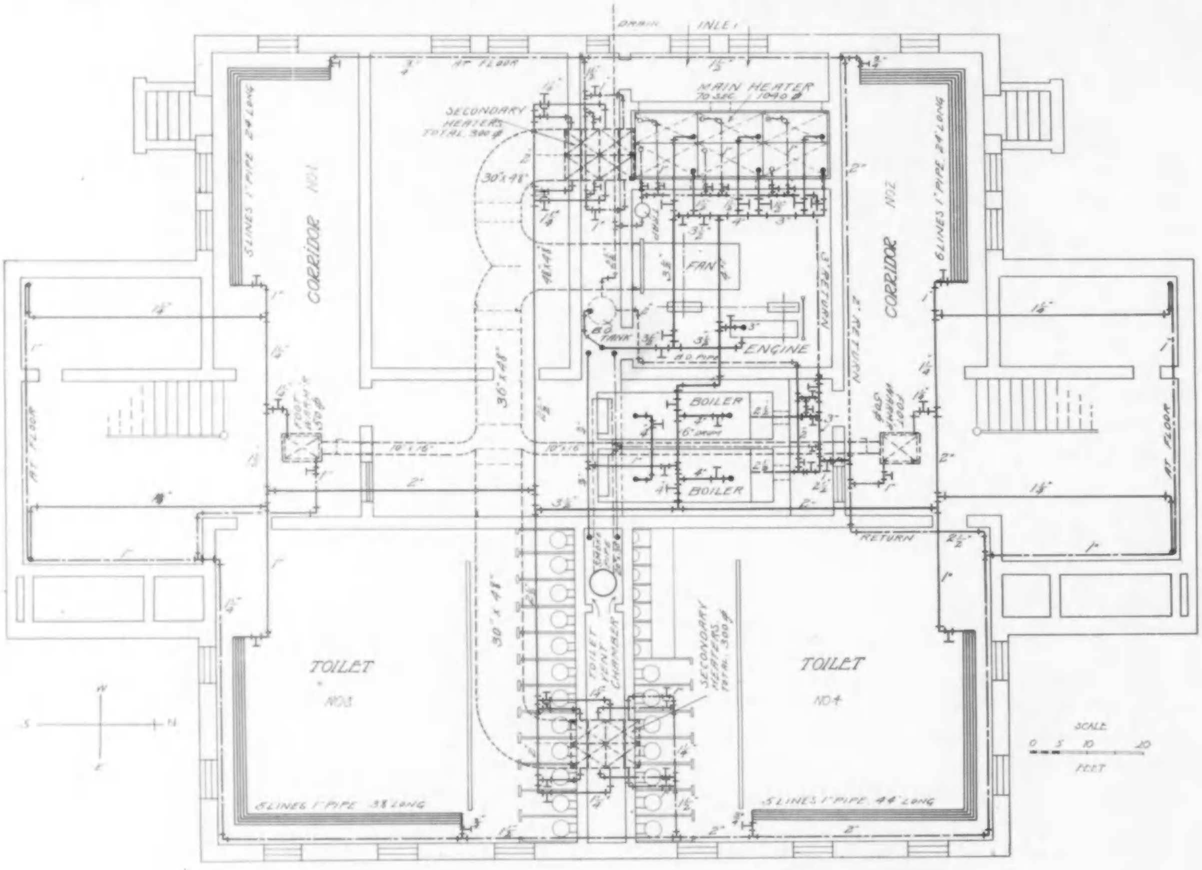


FIG. I.

Heating Surface. The following ratios are used in computing the heating surfaces. Basement rooms with overhead coils: wall 1 to 8, glass 1 to 3, and increase forty per cent on account of their location near ceiling. Direct cast-iron radiators in entrances and small rooms: wall 1 to 8, glass 1 to 3. Class rooms having secondary heaters as base of flues: wall 1 to 20, glass 1 to 5.

Two foot-warmers are used of 50 square feet each, the total being slightly larger than for a single class room.

The heating surfaces are increased by the following factors for exposure:

Exposure of Room.	Increase, per cent.	Exposure of Room.	Increase, per cent.
S. W.	10	N. E.	22
N. W.	30	S. E.	6

Following are the type and quantity of radiating surfaces for each room figured on the above basis and corrected for exposure :

	Room No.	Type of Radiators.	Square Feet of Surface.
Basement Floor	1	Ceiling Coil	40
	2	Ceiling Coil	46
	3	Ceiling Coil	63
	4	Ceiling Coil	73
First Floor	5	Cast-iron Radiator	85
	6	Cast-iron Radiator	47
	7	Secondary Heater	70
	8	Secondary Heater	82
	9	Cast-iron Radiator	56
	10	Cast-iron Radiator	98
	11	Foot-warmers (2)	100
	12	Secondary Heater	67
	13	Secondary Heater	77

under them. There will actually be a somewhat greater heat loss from the second-story rooms due to the cold attic above, but usually the heat rising from the lower part of the building is sufficient to offset this unless the roof is very poorly constructed. In the present case no allowance has been made.

Boiler Power. This is computed by the formula

$$\text{H.-P.} = \frac{(M \times 1{,}500) + (S \times 400) + (C \times 300) + (R \times 250)}{30{,}000}$$

in which,

M = square feet of surface in main heater.
S = square feet of surface in secondary heaters.
C = square feet of surface in coils.
R = square feet of surface in cast-iron radiators.

This gives

$$\text{H.-P.} = \frac{(1{,}040 \times 1{,}500) + (692 \times 400) + (222 \times 300) + (486 \times 250)}{30{,}000}$$

= 67. Two 48-inch tubular boilers are used, each having forty-four 3-inch tubes, 12 feet long, and rated at 35 horse-power. These call for grates 42″ × 54″ each, and a smoke connection with the chimney of 640 square inches for the two boilers.

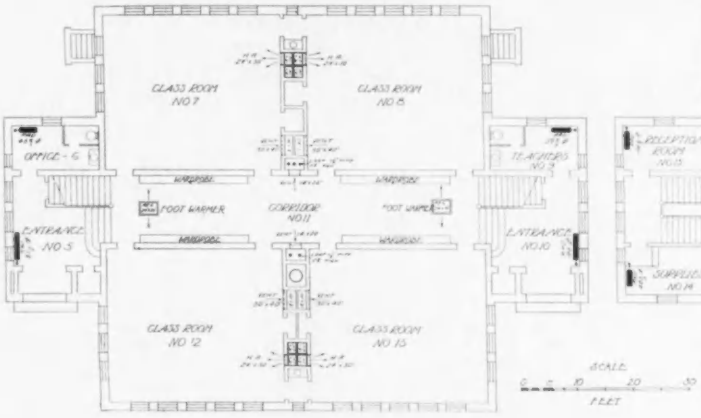


FIG. II.

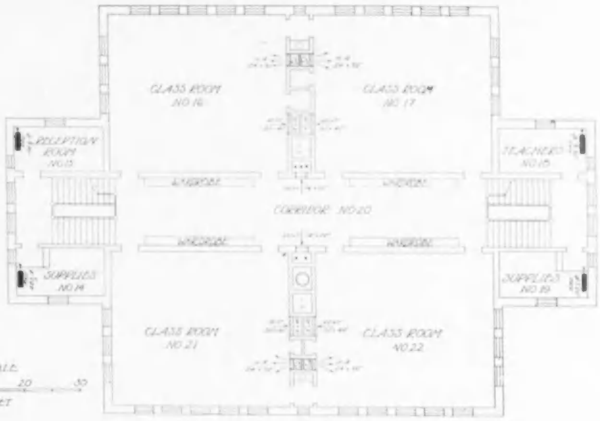


FIG. III.

	Room No.	Type of Radiators.	Square Feet of Surface.
Second Floor	14	Cast-iron Radiator	45
	15	Cast-iron Radiator	47
	16	Secondary Heater	70
	17	Secondary Heater	82
	18	Cast-iron Radiator	56
	19	Cast-iron Radiator	52
	20	No Radiators.	
	21	Secondary Heater	67
	22	Secondary Heater	77

Overhead Coils. These are made up of 1-inch pipe which requires 3 linear feet per square foot of heating surface, and gives the following coil dimensions for the basement rooms : No. 1, 5 lines 24 feet long ; No. 2, 6 lines 24 feet long ; No. 3, 5 lines 38 feet long ; No. 4, 5 lines 44 feet long.

Direct Radiators. Two-column radiators 32 inches high are used in the small rooms, and the heating surface is changed slightly on the drawings from the preceding schedule as it is of course necessary to use a whole number of sections. Three-column radiators are used in the entrances in order to reduce the length.

Secondary Heaters. These are made up of pin radiators rated at 10 square feet each, and therefore the heating surfaces for the different rooms must be multiples of 10. This gives for the various class rooms the following : No. 7, 70 square feet ; No. 8, 80 square feet ; No. 12, 70 square feet ; No. 13, 80 square feet. The heaters for the second-floor class rooms will be the same as for those directly

Steam and Return Piping. The steam piping is indicated in heavy full lines and the returns in broken lines. The latter are carried near the basement floor in order to seal them, and the condensation flows back to the boilers by gravity. The pipes are carried along outside walls and inside partitions in order to avoid trenching.

The pipe sizes are based on the following tables :

MAIN HEATER.

Square Feet.	Steam Pipe.	Return Pipe.
150	2″	1¼″
300	2½″	1½″
500	3″	2″
700	3½″	2″
1000	4″	2½″
2000	5″	3″

SECONDARY HEATERS.

Square Feet.	Steam Pipe.
40	1″
70	1¼″
100	1½″
260	2″
480	2½″
800	3″
1100	3½″

DIRECT RADIATION.

Square Feet.	Steam Pipe.
80	1″
150	1¼″
200	1½″
550	2″
950	2½″
1600	3″
2300	3½″

SIZES OF RETURNS.

Steam Pipe.	Dry Return.	Sealed Return.
1"	1"	¾"
1¼"	1"	1"
1½"	1¼"	1"
2"	1½"	1¼"
2½"	2"	1½"
3"	2½"	2"
3½"	2½"	2"

The piping is first laid out without regard to size, then the square feet of radiation of different kinds on each branch and main is added up and noted in pencil on the drawing. The corresponding pipe size from the tables is then put down in ink and the pencil figures erased. When there are both secondary heaters and direct radiators on the same line it simplifies matters to call each square foot of secondary or indirect radiation equivalent to two of direct and treat the whole system as direct radiation in determining the pipe sizes.

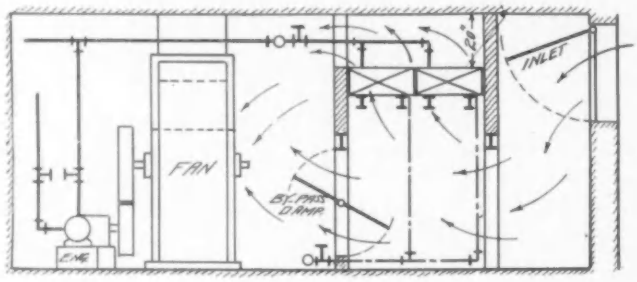


FIG. IV.

Section through fan and heater rooms.

The main heater is always placed on an independent line of piping and all computations are worked out separately.

Basement Airways. The connections between the fan and the uptakes to the rooms are laid out by first drawing in the center lines in pencil, then determining the volume of air which is to flow through each main and branch and computing the sectional area according to the velocities given below:

Trunk lines, 1,000 feet per min. Branches, 700 feet per min.

The flow through the airways is equalized by the use of deflecting dampers at the junctions so that the right proportion can be delivered to each flue.

Toilet Ventilation. The toilet fixtures are connected by means of local vents with a closed chamber which in turn connects with a brick flue surrounding the iron boiler stack. This heats the flue sufficiently to produce a strong draft without the use of vent fans.

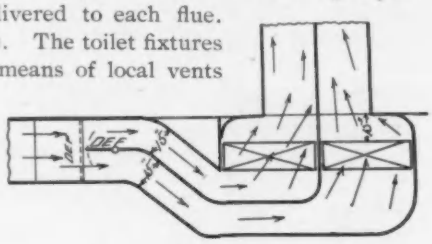


FIG. V.

Sectional elevation of secondary heaters and casing.

Coat Room Vents. The wardrobes in this building are located in the main corridors as shown in Figs. II and III. These are vented through grilles at the center on each side of the corridor into brick flues heated by loops of steam pipe.

General Directions. In laying out a system of heating and ventilation it is neither convenient nor necessary to be exact in all cases. That is, heating surfaces must often be changed slightly to conform with the type of radiator used; boilers of stock size must be employed; air ducts are not always changed in size every time a branch is taken off, etc. In making these changes, however, the designer should always keep on the side of safety, by using the next larger size, unless the reduction is very small. The accompanying plans show the usual method of representing a system of this kind, and a following article will give specifications for the same.

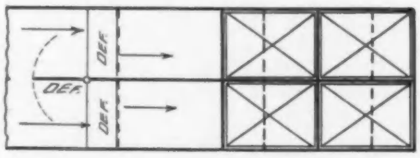
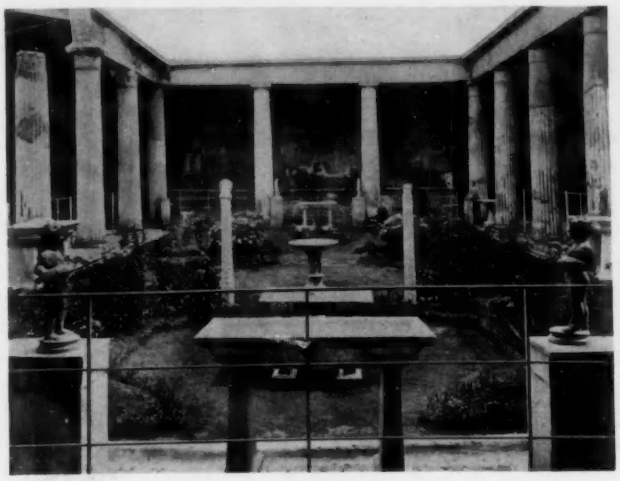


FIG. VI.

Plan view of group of secondary heaters and casing.

MEYER ARCADE, MINNEAPOLIS, MINN. WILLIAM M. KENYON, ARCHITECT.



THE COURT. HOUSE OF THE VETII, POMPEII. WALL DECORATIONS.

Distinguished Architecture as a Precedent.—II.

C. HOWARD WALKER.

THE forms of the architecture of Rome were derived from the Greek orders, as far as columns and entablatures are concerned,—but there appeared early in Roman work a constructive factor which revolutionized design.

The semicircular arch at once permitted larger spans between supports than occurred with the lintel, and the arch, when used, tended to destroy the regular intercolumniation of colonnades.

The arch introduced into architectural design at a large scale the element of the curved line which had previously occurred only in details, and soon made that line the dominant motive of the design. A circle is the most conspicuous of all geometric motives and the semicircular arch became the most conspicuous factor in Roman architecture. Coincident with the opportunity to enlarge spans and areas offered by the use of the arch came the necessity for more spacious buildings to accommodate larger masses of people. The arch made possible the great baths of Caracalla and of Diocletian, the palaces on the Palatine Hill, the so-called Basilica of Constantine, and the villa of Hadrian, and while the temples in the Forum maintained the tradition of the colonnade with lintels, that was associated with the temples of the past; and just as the modern ecclesiastical work maintains its architectural traditions, so the secular and civic buildings, mausoleums, etc., were designed with the arch as the chief structural motive.

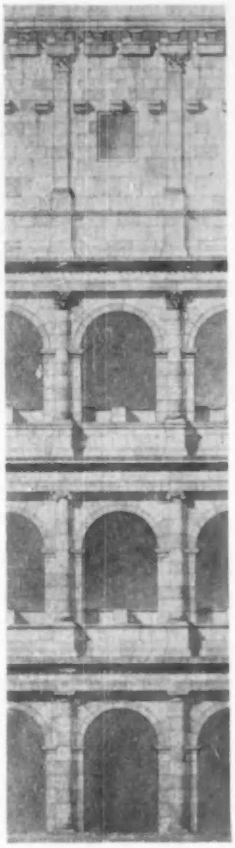
The harmony of the formal repetition of one motive was so inherent in classic design in Greece, that no change in method was considered by Rome, and the arches were with few exceptions, one of which is the Arch of Constantine, the same size in any one structure — variation in the sizes of arches appearing in the decline of the arts in the reign of Diocletian. Previous to that time large openings were spanned by similar arches, while the necessary smaller openings retained the lintels, and were of minor importance.

The composition of the façades of Roman secular buildings became, therefore, one of combinations of piers and arched openings, on one, two, or more stories—and the columns and entablatures were often used as mere frames enclosing the spaces containing the arched openings. The arcade in which the arches sprung from the abaci of the columns was of a later development and appears in Spalato. The fact that the

ARCH OF CONSTANTINE, ROME.

columns and entablatures had become ornamental features unnecessary as structure has caused severe criticism of Roman design amongst the

STUCCO TREATMENT, TOMB IN THE VIA LATINA, ROME.

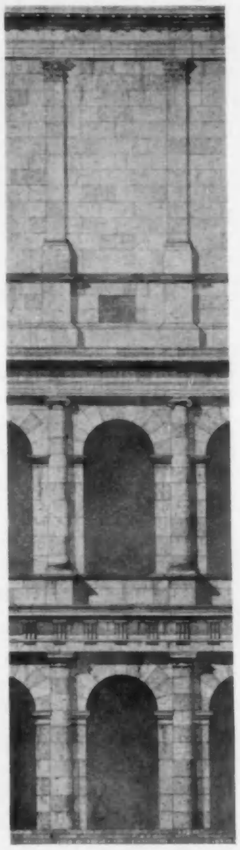


DETAIL OF COLOSSEUM, ROME.

purists — who claim that Roman architecture was not only veneered upon its surfaces — but had a veneered apparent structure placed upon the face of its actual structure.

The use of the circle in the plan as well as in the elevation was constantly more frequent until it reaches its height in the time of Hadrian, when circular buildings became almost a fashion.

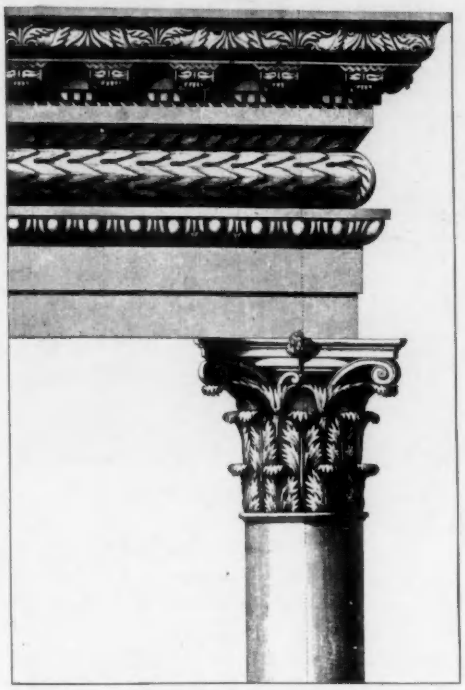
Arched structure prolonged produced the barrel vault, and whirled about a circular plan produced the domical vault, and both became factors in design — inside and outside. Both were divided into compartments or caissons or panels to lighten the material, and later the panels were fused and ribs used. In the Greek ceilings the panels produced by the beams were rectangular. The Roman caissons were of various geometrical designs, often of great interest. They varied in depth and formed backgrounds for applied ornament. The polychromy of the Greeks upon the exterior of the buildings had largely disappeared by the third century B.C., and the decoration of surfaces and mouldings by carving had taken its place with the Romans. The painting of surfaces between structural factors is evidenced in the House of Germanicus on the Palatine and in Pompeii, as shown in the illustration of the House of the Vetii, and the use of marbles of various colors increased as the luxury of Rome grew. Except in the less important buildings the color of materials — bronze, gold, and colored marbles — took the place of painting, and it is in the use of marble mosaics in tesseræ or small fragments in floors, and marble veneers in large sheets and borders upon walls, that Roman design is suggestive. In all cases the design conformed to the scale of the building. In the huge halls of the baths, etc., the panels were ample, simple, and broad — while in the small domestic rooms of the villas, the ornament was delicate and small in scale. See the illustration of a decorated wall from Pompeii in its harmonious design and richness.



DETAIL OF THEATRE OF MARCELLUS, ROME.

DECORATED WALL SURFACE, POMPEII.

A method of obtaining low relief by applying stucco with a brush — which is best seen in the tombs in the Via Flaminia and the Via Latina — was soon imitated in low relief carving as shown in the illustration. The decorated keystone in the arch is a new motive, and seems to have

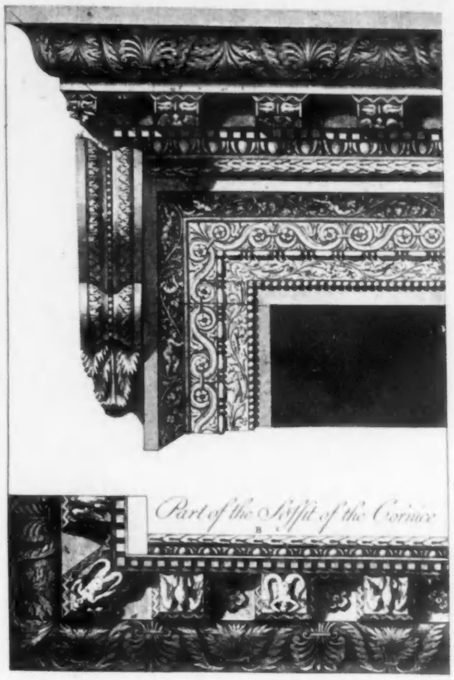


DETAIL, TEMPLE OF JUPITER, SPALATO.

been used more to repeat the tone of the carved caps in the same line, than to mark the axis of the opening.

The carved acanthus was frequently used, elaborately wrought and of carefully constructed plan. Its lobes were in most cases concave, as were those of the Greek acanthus, but they were not as sharp at the points, at times being almost circular in profile. The name given to the leafage — the acanthus molle, the soft acanthus — indicates the character of the leaf.

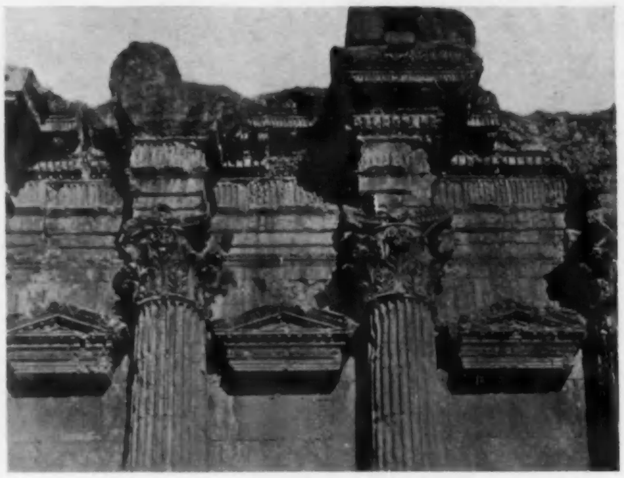
The decorated scroll is a favorite Roman ornament, robust in character, and leaving but little background evident. All



DETAIL, TEMPLE OF AESCULAPIUS, SPALATO.

VIEW OF THE PERISTYLIUM OF THE PALACE OF EMPEROR DIOCLETIAN, SPALATO IN DALMATIA.

GOLDEN GATEWAY, SPALATO.



DETAIL AT BAALBEC.

Roman ornament up to the time of Hadrian was vigorous and luxuriant — during his reign the study of Greek work in Athens refined and made more delicate the Roman motives. One of the most famous of the scrolls is from the Forum of Nerva.

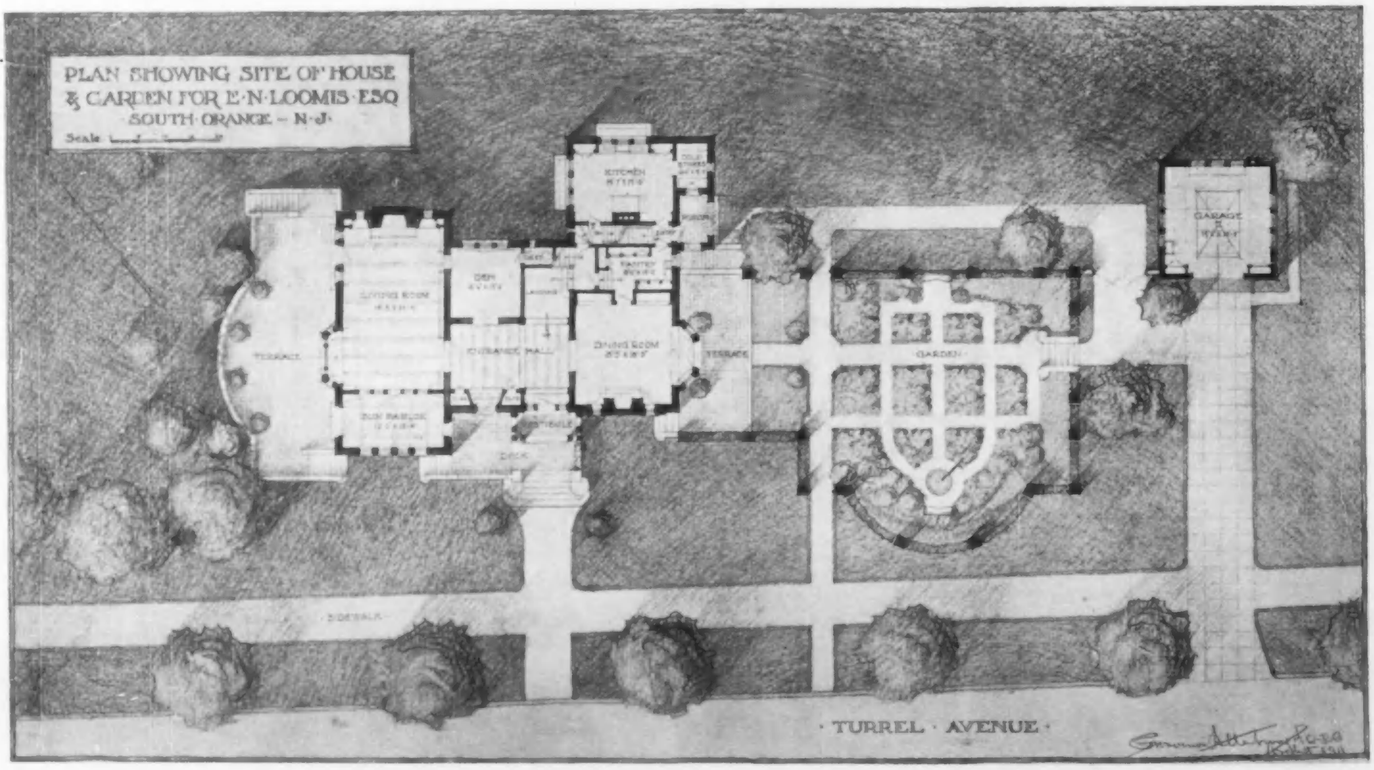
The rosette was frequently used, and usually in high relief. The Roman work is suggestive from its vigor and simplicity of arrangement, its luxuriant development of structural decoration, and the magnificent scale of its achievements, especially in the plans of its buildings. A very considerable expenditure is necessary for its accomplishment.

The smaller and more domestic work has been preserved for us in Pompeii and Herculaneum. It is largely painted decoration upon a stucco which covers the structure, and is in three zones, the dado, the wall, and the frieze. The dado is usually the darkest and is evidently utilitarian — as a background for furniture, and subject to being marred and therefore kept simple. The wall is subdivided into panels of color with delicate borders, and some small decorative subject in the center of the panel. The frieze acts as a top border to the room, defining the wall from the ceiling. The wall panels usually set the dominant color for the room. This method of subdivision of wall surface was adapted to modern conditions in the Empire style in 1800, and the colored walls of Pompeiian houses are but little fitted to modern environment, excepting perhaps in very small rooms.

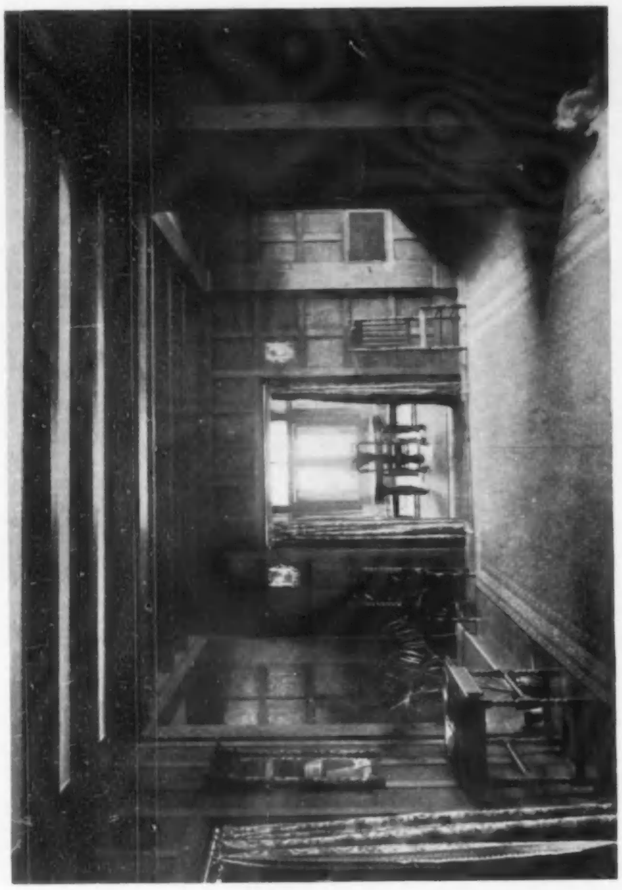
During the second century all arts declined in Rome both as to character of design and skill in workmanship.

The indiscriminate use of columns and arches of various sizes, the breaking up of entablatures, and the introduction of heavy corbel courses began the progress towards that absolute license in design which ignored the orders and made possible the development of Romanesque and Gothic art. When Diocletian retired to Dalmatia and built his enormous palace at Spalato there was great latitude in the design, as there was also in Baalbec and Palmyra, and new combinations appeared. This later work which was derived from classic precedent is extremely suggestive in the use of rich and almost florid detail applied to broad mouldings and to surfaces, but still held firmly in rectangular or semicircular frames. There is no more luxuriant type of detail than the carving of this period, but it is orderly in arrangement and firmly held, and the silhouettes of the work are simple in character. Several illustrations of the rich detail of this period are given from the Acropolis of Baalbec and the Golden Gateway in Spalato. This detail is derived from the motives of the earlier Roman work; but is used much more abundantly upon plain surfaces than is customary with either the Greeks or Romans in their best art.

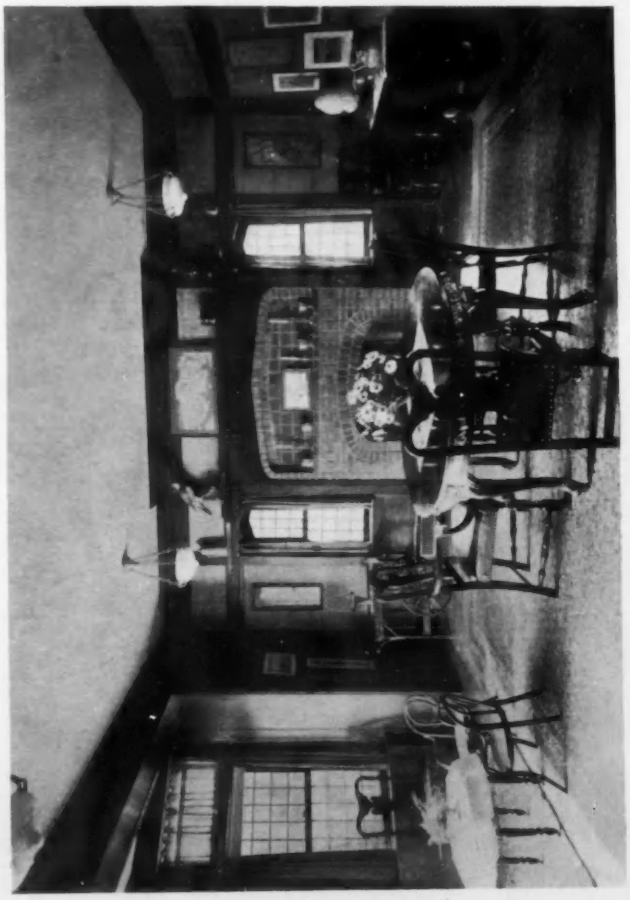
DETAIL AT BAALBEC.



HOUSE AND GARDEN PLAN AT SOUTH ORANGE, N. J.
GROSVENOR ATTERBURY, ARCHITECT.



ENTRANCE HALL.
SUN PARLOR.



LIVING ROOM.
DINING ROOM.

INTERIOR VIEWS, HOUSE AT SOUTH ORANGE, N. J.
GROSVENOR ATTERBURY, ARCHITECT.

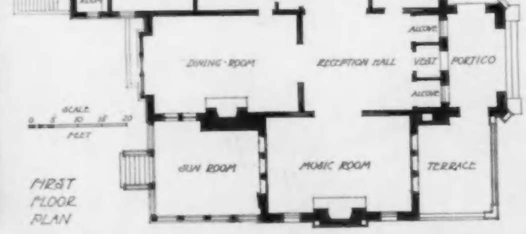
GARAGE.

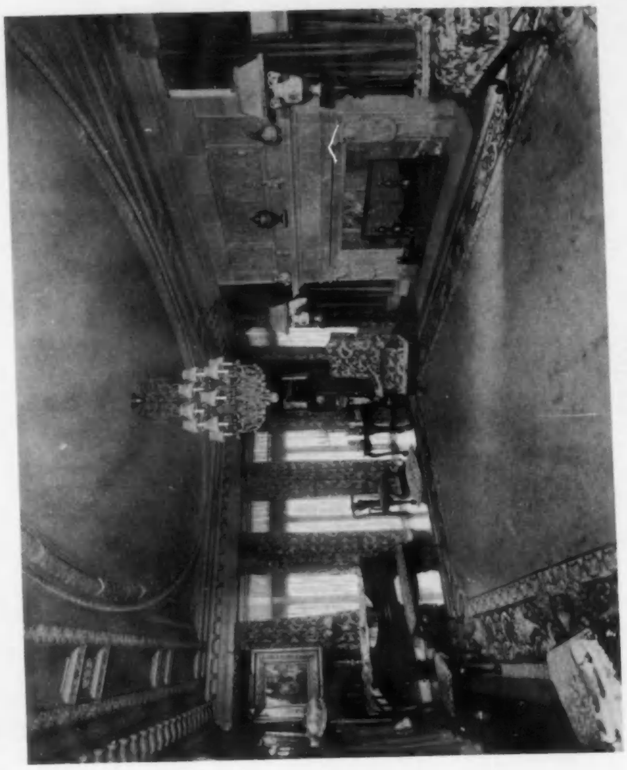
DETAIL OF ENTRANCE.

HOUSE AND GARAGE AT SOUTH ORANGE, N. J.
GROSVENOR ATTERBURY, ARCHITECT.

HOUSE AT ST LOUIS, MO.

MAURAN, RUSSELL & CROWELL, ARCHITECTS.



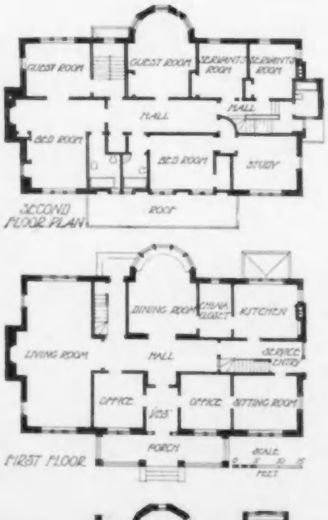


MUSIC ROOM.

EXTERIOR
AND
INTERIOR VIEWS,
HOUSE AT
ST. LOUIS, MO.

MAURAN, RUSSELL
& CROWELL, ARCHITECTS.

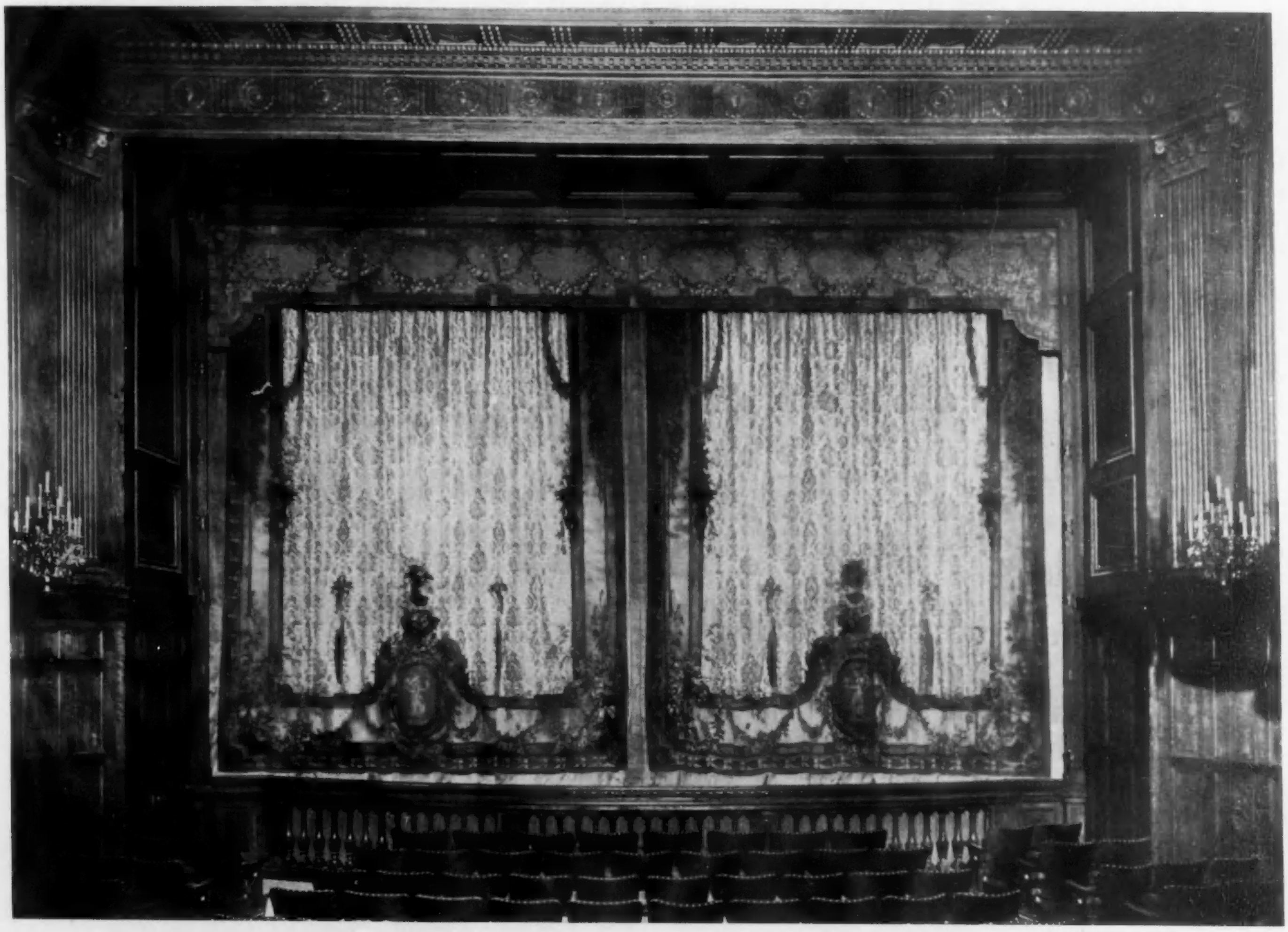
RECEPTION HALL.



RECTORY FOR CHURCH OF THE SACRED HEART.
MANCHESTER-BY-THE-SEA, MASS.

Matthew Sullivan, Architect.

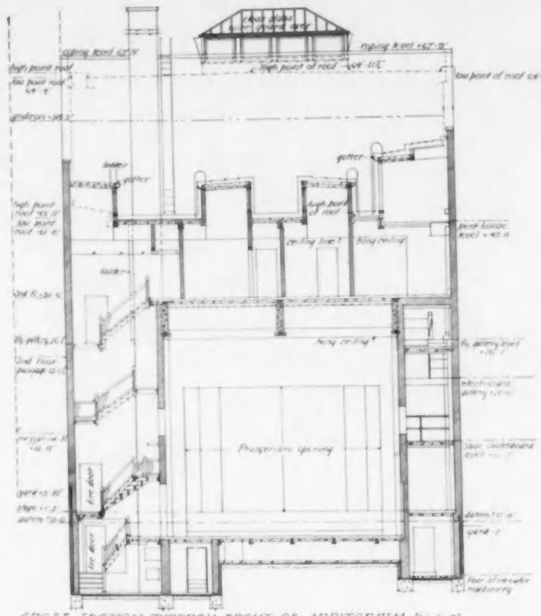
THE LITTLE THEATRE, 240 WEST 44TH STREET, NEW YORK CITY.
HARRY CREIGHTON INGALLS AND F. BURRALL HOFFMAN, JR., ASSOCIATED, ARCHITECTS.



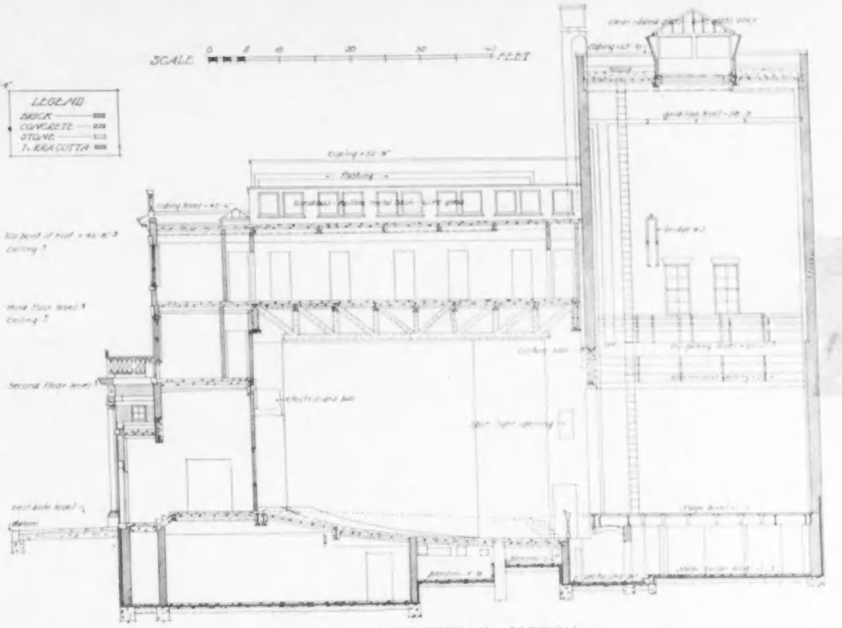
TWO VIEWS OF AUDITORIUM.

THE LITTLE THEATRE, 240 WEST 44TH STREET, NEW YORK CITY.

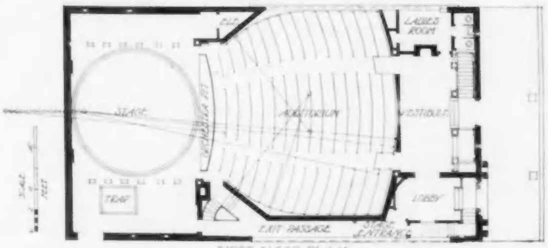
HARRY CREIGHTON INGALLS AND F. BURRALL HOFFMAN, JR., ASSOCIATED, ARCHITECTS.



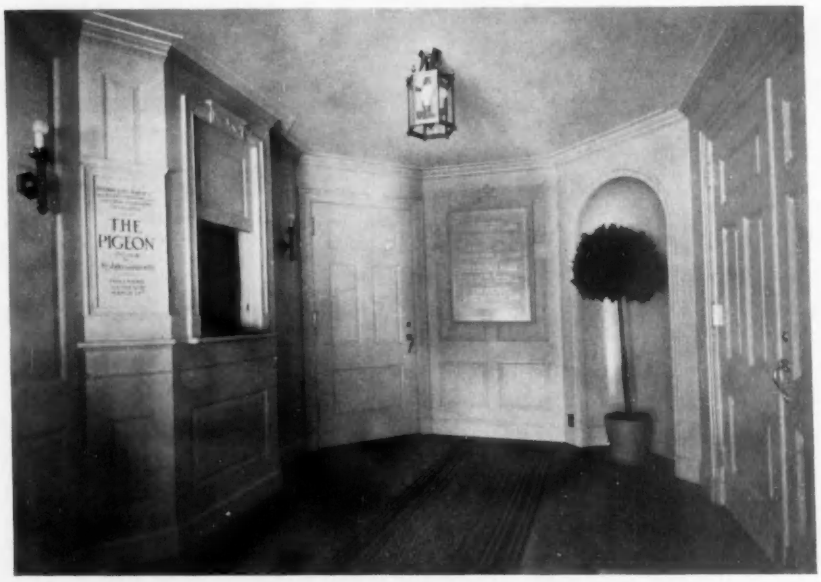
CROSS SECTION THROUGH FRONT OF AUDITORIUM ¼"-1'-0"



LONGITUDINAL SECTION



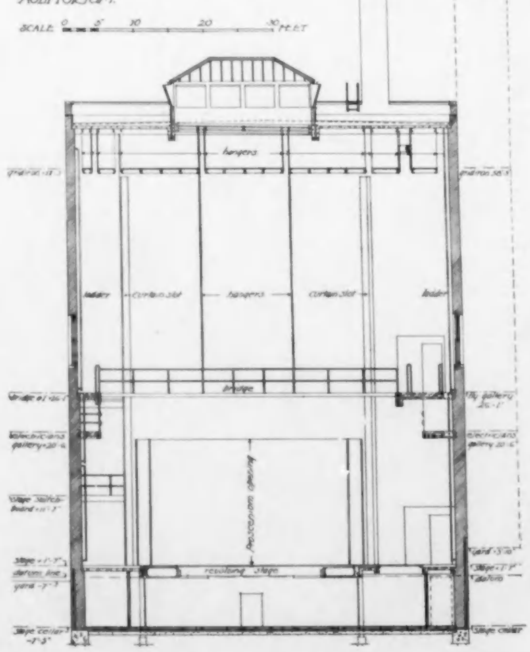
FIRST FLOOR PLAN

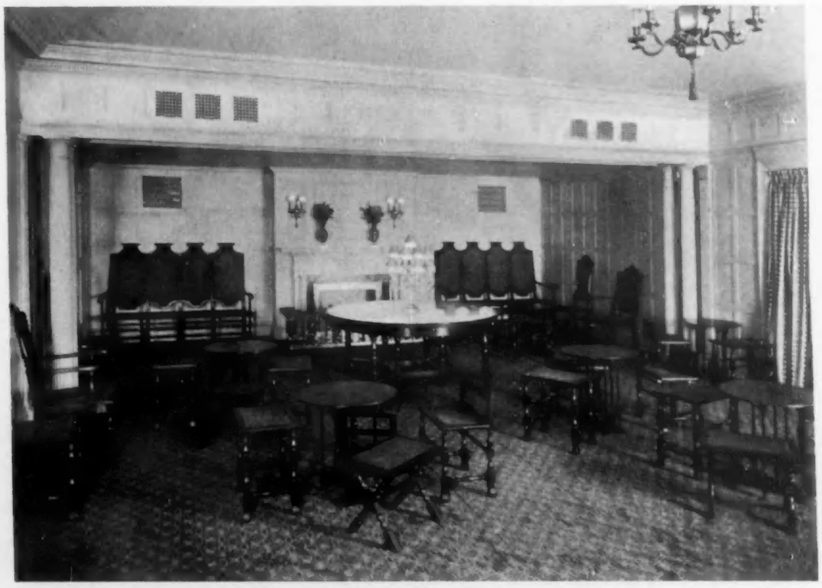


LOBBY.

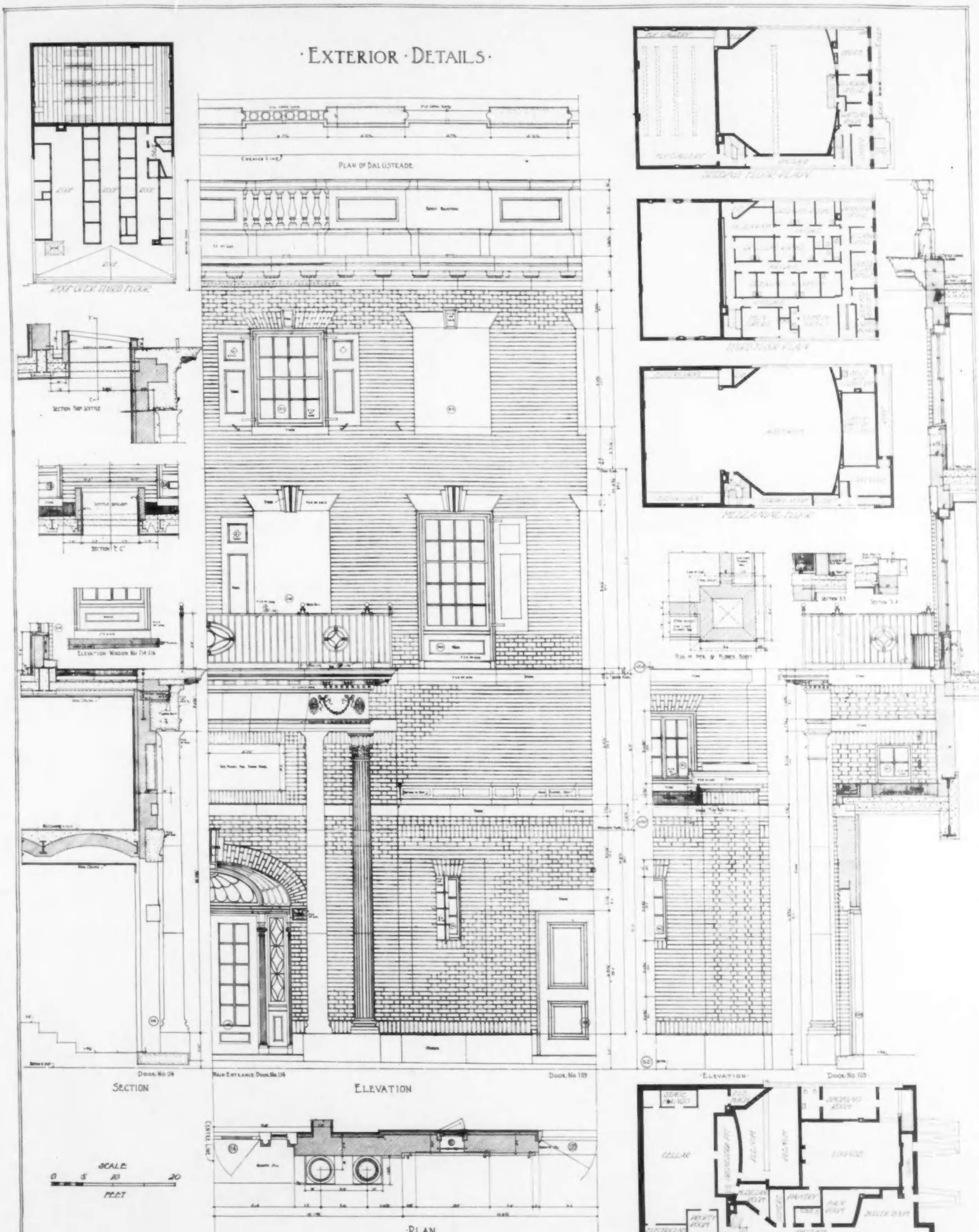
SECTIONS, PLAN AND INTERIOR VIEWS,
THE LITTLE THEATRE,
240 WEST 44TH ST., NEW YORK CITY.
HARRY CREIGHTON INGALLS AND
F. BURRALL HOFFMAN, JR., ASSOCIATED, ARCHITECTS.

SECTION THROUGH STAGE HOUSE LOOKING TOWARDS AUDITORIUM.





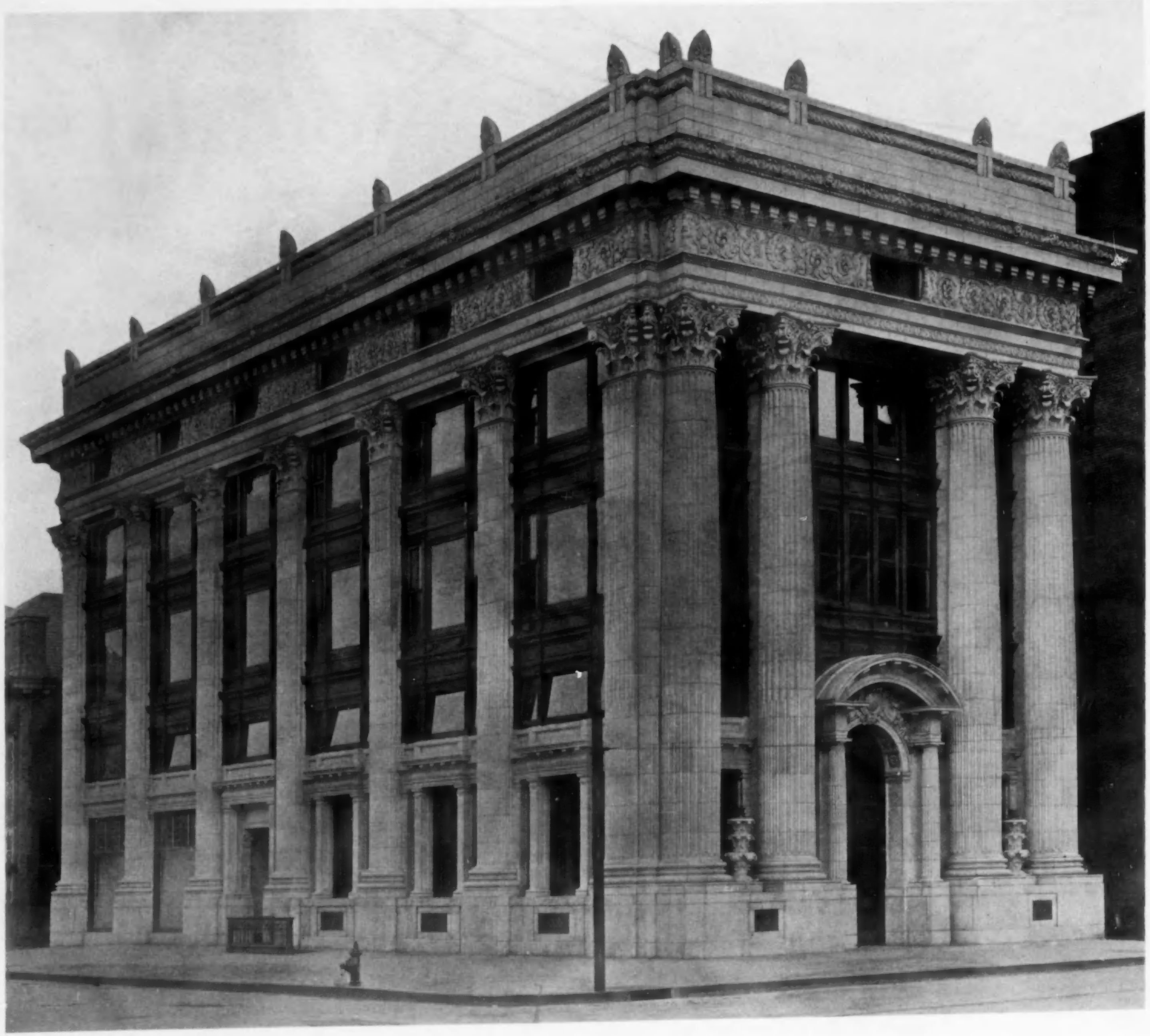
LOUNGE.



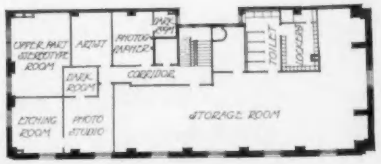
EXTERIOR DETAILS AND PLANS.

THE LITTLE THEATRE, 240 WEST 44TH STREET, NEW YORK CITY.

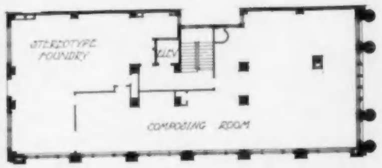
HARRY CREIGHTON INGALLS AND F. BURRALL HOFFMAN, JR., ASSOCIATED, ARCHITECTS.



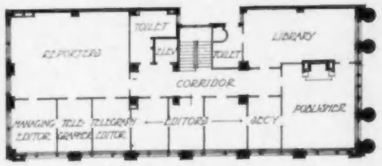
DAYTON DAILY NEWS BUILDING, DAYTON, OHIO.
EXTERIOR BUILT OF ARCHITECTURAL TERRA COTTA.
ALBERT PRETZINGER, ARCHITECT.



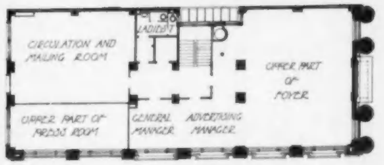
FOURTH FLOOR PLAN.



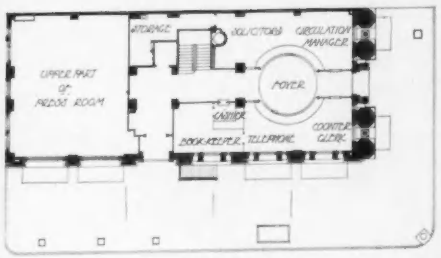
THIRD FLOOR PLAN.



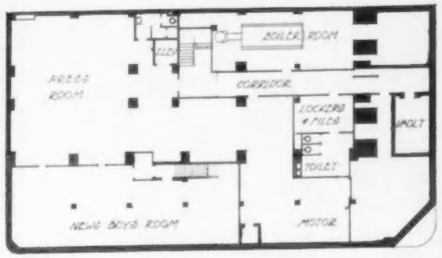
SECOND FLOOR PLAN.



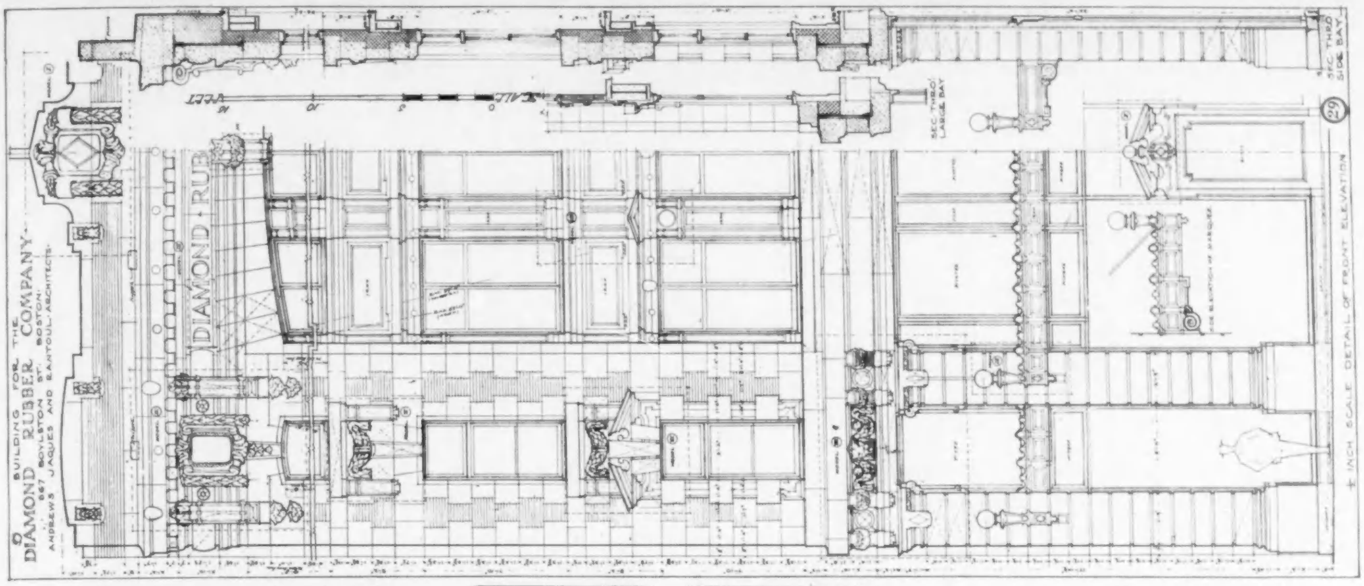
FIRST FLOOR MEZZANINE PLAN.

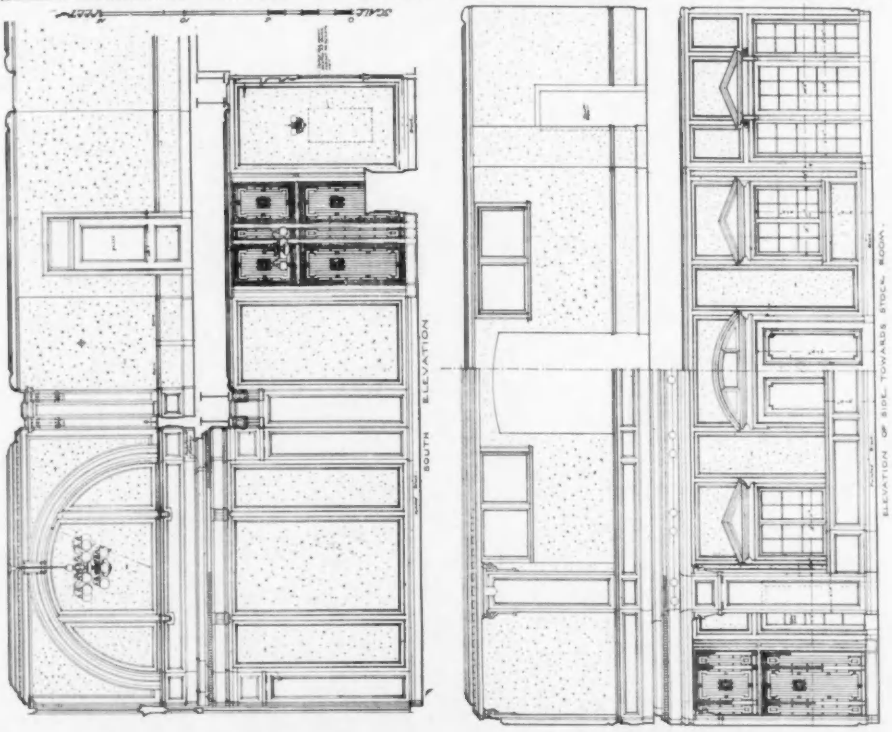


FIRST FLOOR PLAN.

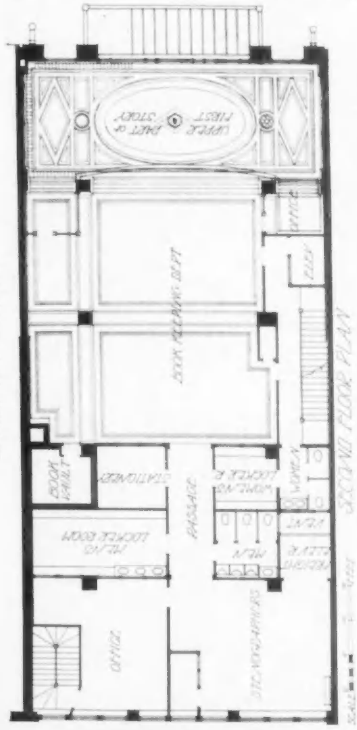


BASEMENT PLAN.





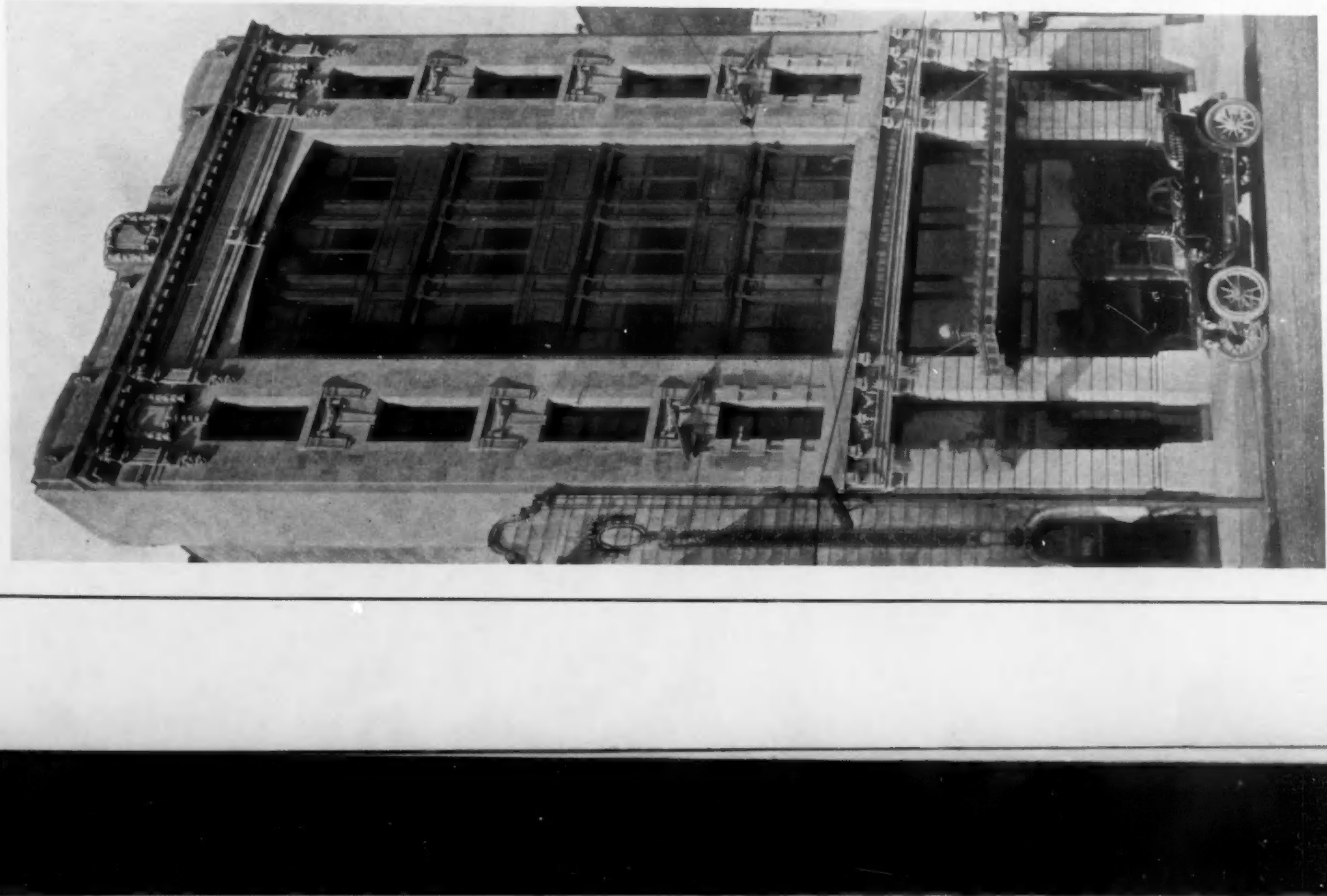
DETAILS OF SALESROOM.

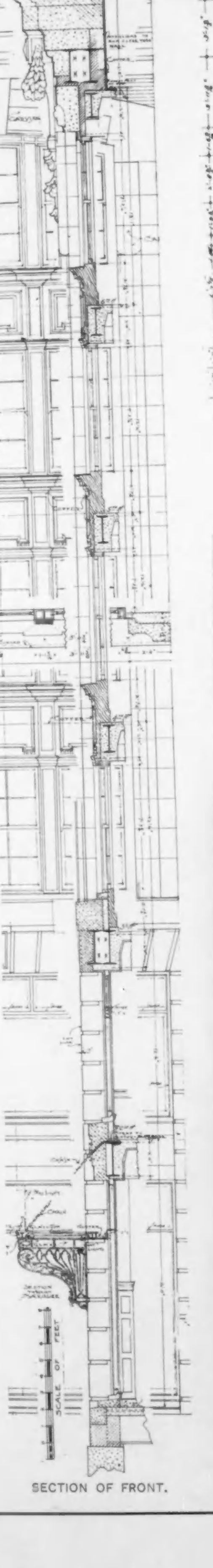


THE DIAMOND RUBBER COMPANY BUILDING

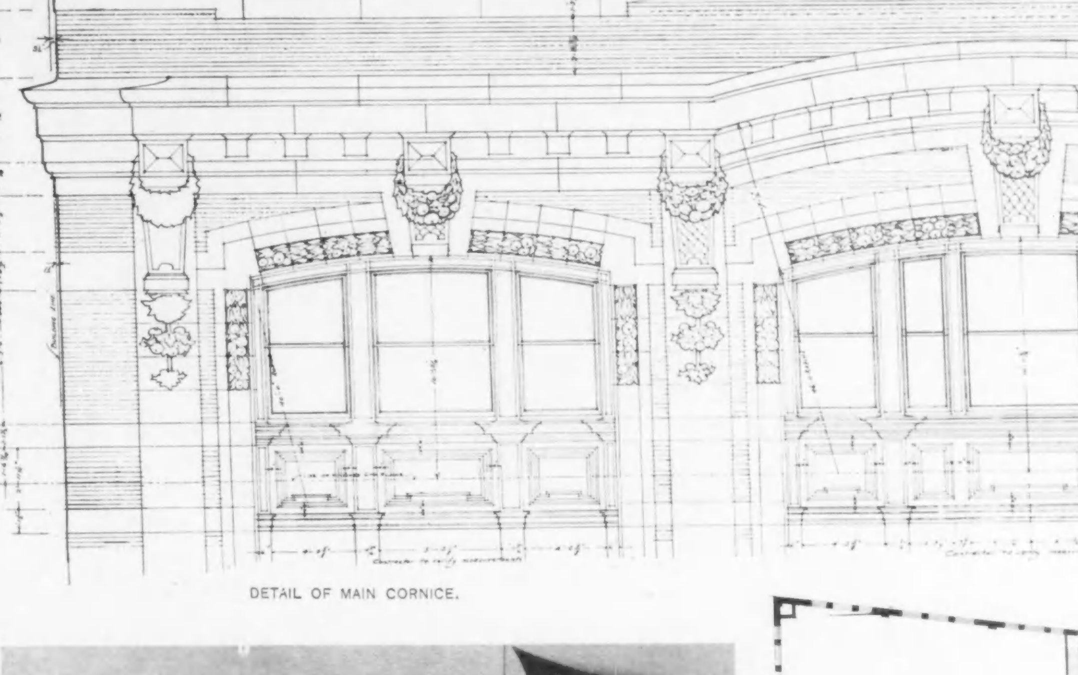
BOSTON, MASS.

ANDREWS, JAQUES & RANTOUL, ARCHITECTS.





SECTION OF FRONT.

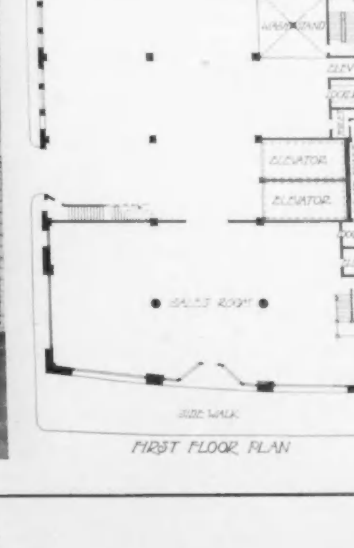


DETAIL OF MAIN CORNICE.

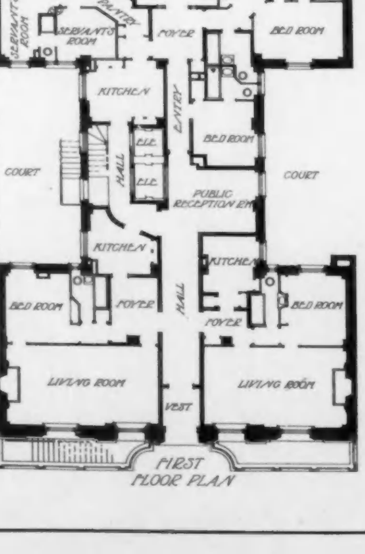
SECOND FLOOR PLAN

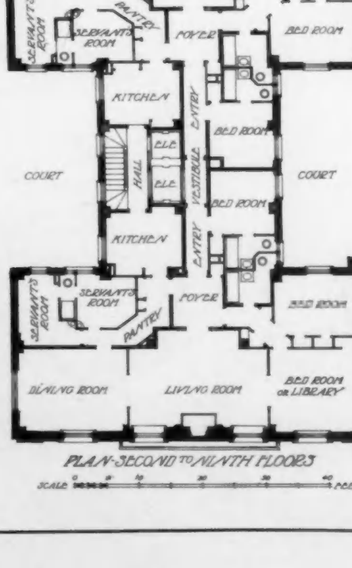
PEERLESS MOTOR CAR CO. BUILDING, BOSTON, MASS.

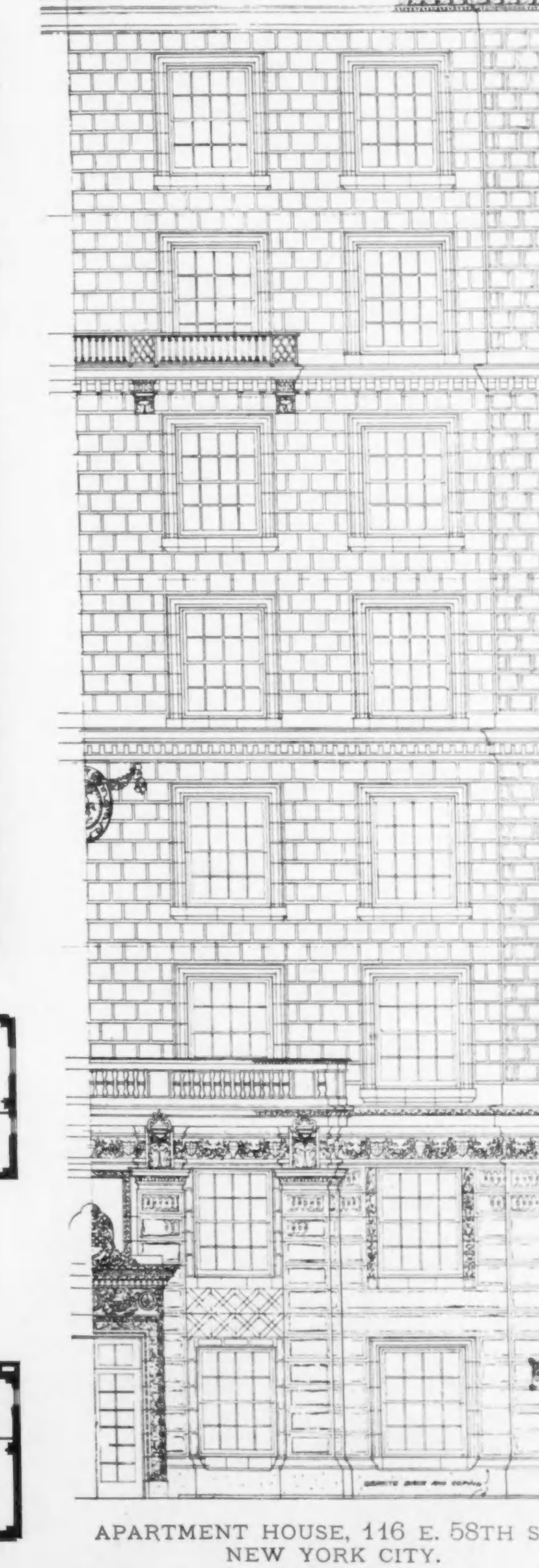
ANDREWS, JAQUES & RANTOUL, ARCHITECTS.



FIRST FLOOR PLAN







APARTMENT HOUSE, 116 E. 58TH ST.,
NEW YORK CITY.
J. E. R. CARPENTER, ARCHITECT.

Commemorative Monuments.—III.

H. VAN BUREN MAGONIGLE.

WE come now to four statues that are not portraits; they are abstractions or symbols; the first is Mr. French's Alma Mater in front of the Library of Columbia University by McKim, who designed the exceedingly simple pedestal which harmonizes so well with its surroundings.

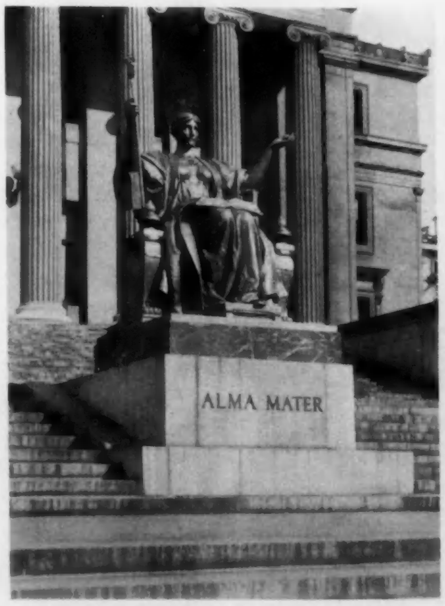
The second is the colossal statue symbolizing the French Republic, in the long and rather narrow Place de la Republique in Paris. The scale of the monument is in proportion to its importance as the central feature of a large square; the base is given a richer treatment than is permissible in a mere portrait statue. The upper part is circular and therefore retains the same outline from any point of view; it is very difficult to design a pedestal for a standing figure of anywhere from 7 feet to 9 feet 6 inches in height, unless the mass is amplified by a chair or other adjunct, because the feet take up so little room that it is hard to get mass enough in the pedestal to make it an adequate support; so that one is grateful for a square form which enlarges itself in perspective. Here, however, the draperies of the figure provide a mass for which the circular pedestal is ample.

STATUE OF THE REPUBLIC, PARIS.

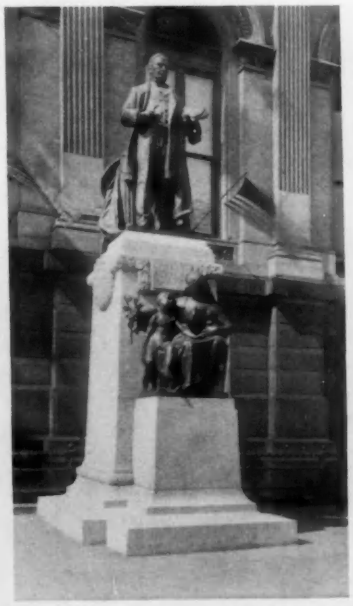
The Nathan Hale illustrated in the first article has a circular pedestal by Stanford White, the only one in this country that I can recall at the moment; but the figure is so slender that the two are well proportioned to each other.

The third is one of the eight allegorical figures disposed at the angles of the Place de la Concorde, and represents the city of Strasbourg, lost to the French in the Franco-Prussian war. The wreaths we see are placed here every year as tokens of the undying regret of the French nation and as visible symbols of the hope that some day Alsace-Lorraine may be won again to their flag. These eight statues occur in pairs at the corners of the huge square, each pair connected by a balustrade, a portion of which may be seen in the photograph.

The fourth, one of the most beautiful if not the most beautiful allegorical or symbolic figure I know, is that of Bellona extending the olive branch of peace, as the Soldiers and Sailors Monument in Jersey City. I confess to such a weakness for this monument that I give three views of it, and could I have secured one of the side would have given that as well. It is worth a pilgrimage to see,



ALMA MATER, COLUMBIA UNIVERSITY.



MCKINLEY MONUMENT, PHILADELPHIA.

COOPER MONUMENT, NEW YORK.

although the custodian of the unspeakable City Hall has done his best to ruin it by erecting an iron fence around it, let into the stylobate. This sort of thing beats hollow all the soldiers at parade-rest and charge-bayonets we are afflicted with all over our unhappy land. I have always felt this to be Philip Martiny's masterpiece. His collaborator was Albert Randolph Ross whose first work in this kind this was, I believe; and there is a spring in the line of the pedestal that unites it with the big lines of the figure and makes them as nearly one mass as bronze and Milford granite can be.

STATUE OF THE CITY OF STRASBOURG, PARIS.

In the Peter Cooper Monument in the little triangle south of Cooper Union in New York, by McKim, Mead & White and St. Gaudens, we find that lack of correspondence in character between the statue and pedestal which has been referred to; each is excellent in itself; but the delicate classic detail of the pedestal and tablet seem quite out of key with the rough loose garments of the statue.

THREE VIEWS, SOLDIERS AND SAILORS MONUMENT, JERSEY CITY, N. J.

In this respect the Bryant Statue and its protecting baldachino, in the rear of the New York Public Library, are much better. Mr. Herbert Adams has thrown a robe over the legs of the aged poet, gotten rid of the trousers and thus succeeded in harmonizing his figure with the architecture. While this has not yet cooled off, let us be bold and say that the vertical lines of the columns and of the cedars behind, with the glimpses one gets of the heavy horizontal shadows of the rustication of the Library, are disturbing and detract from the effect of this beautiful statue; one would have preferred a solid niche with an extremely simple wall surface in which there would have been no lines cutting at all sorts of points against the figure.

MARYLAND UNION SOLDIERS AND SAILORS MEMORIAL, BALTIMORE.

Up to this point we have dealt with the single figure; those that follow are more complicated compositions, the simplest being the McKinley Memorial

at the City Hall in Philadelphia by Mr. Ross and Messrs. Lopez and Konti, the latter of whom took up the work after Mr. Lopez's death. It is not as successful as most of those with which Mr. Ross has had to do, the lower pedestal supporting the figure of Columbia teaching the child from McKinley's example, not being satisfactorily united with the pedestal of the statue. The figures referred to seem meager and tinny in modeling and surface. The architecture is executed in Stony Creek granite.

In the Maryland Union Soldiers and Sailors Memorial in Druid Hill Park, Baltimore, Mr. Ross and Mr. Weinman again collaborated. The idea expressed is that of the young soldier of Maryland leaving his anvil and his plow-

MCKINLEY MEMORIAL, COLUMBUS, OHIO.

share and buckling on his sword, urged forward by the Goddess of War and his mother-state. The pedestal is curved on the front and rear, the curved surfaces bearing the inscription and the coat-of-arms of Maryland, and on the straight sides bas-reliefs in Knoxville marble set in the pink granite, representing the army and the navy.

The McKinley Memorial at Columbus, Ohio, an unusual and interesting composition, is by Messrs. Lord and Hewlett and Hermon A. McNeill. The sculpture is especially fine in modeling and character, and merely as a portrait the statue is superlatively good. The way in which the pedestal pierces or divides the tablet is not perhaps entirely fortunate, and the wisdom of the subdivision of so small a composition into practically seven parts (the two end groups, the two portions of the seat, the two parts of the tablet, and the principal pedestal) may be questioned; but it has interest and color. The stone is Federal Hill granite from New Jersey. In the background is the fine old Capitol and the monument is opposite the entrance.

BRYANT STATUE, NEW YORK CITY.

We reserve to the last the group which tells the story of those Burghers of Calais who came forth after the siege of the city, starved, gaunt, and haggard, to deliver up the keys of the gates to the victor. This is one of those exceptional instances where the genius of the sculptor, defying every accepted canon of his art, has triumphed. For centuries it has been a law of composition that a group of figures must be composed in more or less pyramidal form, but Rodin has cast aside this formula and appeals straight to the heart rather than to the intellect and our preconceived notions of sculptural composition. It is merely a procession of awful presences who impose themselves on our imagination telling their awful story. In feeble hands subjects of this episodical nature are apt to degenerate into the theatrical or the sentimental, and this is one of the very few examples of what we may call the "literary idea," that in its tremendous power, its deep personal appeal, is its own justification.

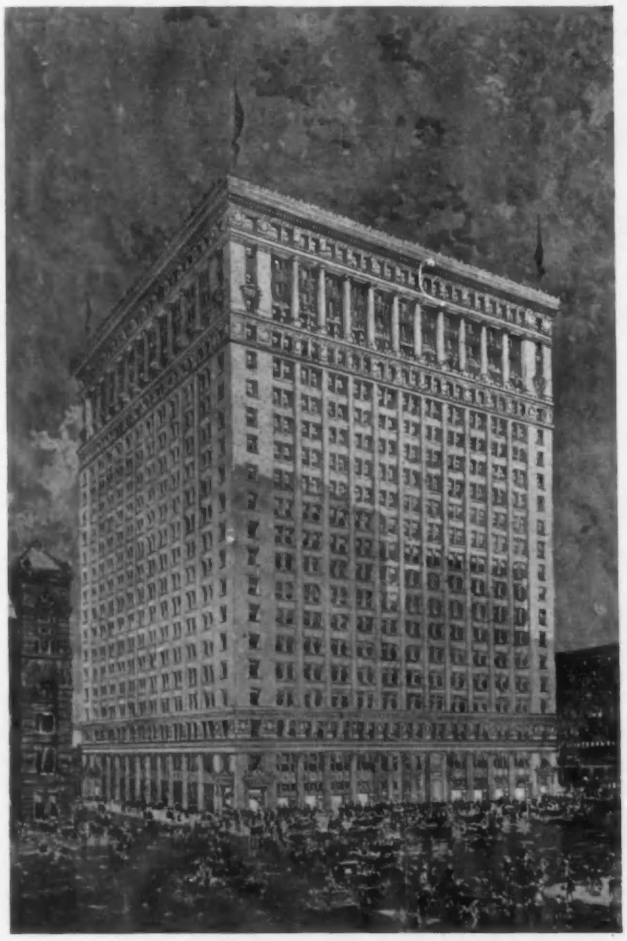
BURGHERS OF CALAIS MONUMENT, CALAIS, FRANCE.

Insurance Exchange Building, Chicago, Ill.

D. H. BURNHAM & CO., ARCHITECTS.

CHICAGO, the birthplace of skyscrapers, possesses many excellent examples of buildings erected for commercial life. Each one portrays a definite idea as to the fitness of the design in conjunction with its practical needs. They also reveal the consistent treatment of architectural forms by means of the various materials most easily acquired and best adapted to this type of building.

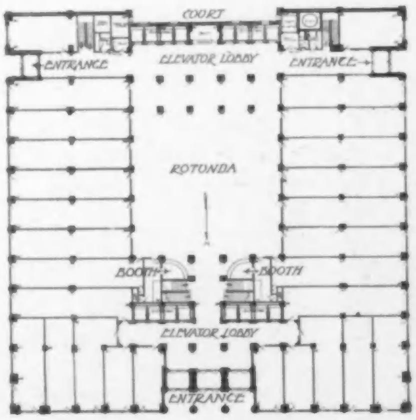
The extreme height of fireproof structures calls for a substance that is light and absolutely fire resisting and at the same time conforms to the esthetic demands. The characteristics have been adequately met through the use of terra cotta. The ornamental, delicate, and weathering qualities of this material have gradually and consistently won recognition, and it is now universally used in the construction of all large commercial buildings.



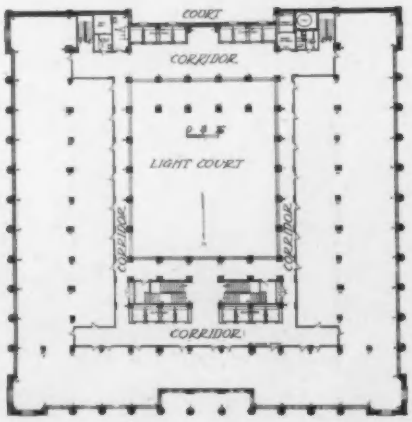
One of Chicago's most modern office structures is the Insurance Exchange Building located in the heart of the financial center. It is twenty-one stories in height, resting upon caisson foundations which extend to bed-rock. The exterior is of cream-white enameled terra cotta and enameled brick, lending a perfect harmony both as to texture and color. The design, which reveals a serious attempt to portray its exclusively commercial aspect, has resulted in lines and proportions of dignified simplicity. It follows the developed type of divisions for structures of its kind, while the vertical lines are duly emphasized and the corners treated as abutments.

The building is of steel frame construction and requires an unusual amount of terra cotta throughout the whole structure. The quality of lightness has enabled the architect to use the minimum amount of space for walls and thereby enhances the value of the rental portions. This prevents the sacrificing of the commericial value of the building and at the same time allows full freedom for the ornamentation. Such a problem as that of meeting the practical requirements of the office type in a most economical manner and increasing the earning capacity has become a matter of much import, and one cannot help but feel that this structure most nearly approaches the proper solution.

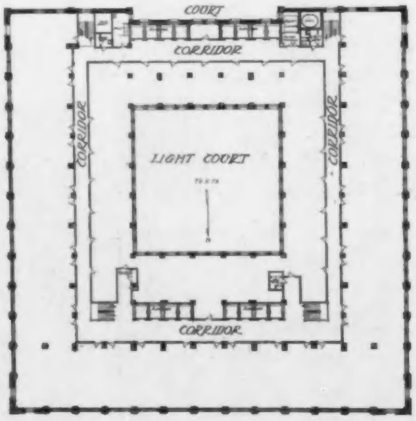
The first three stories, built entirely of terra cotta, portray the pleasing results obtained in adapting the design to the material itself. The ornamental entrances with their delicate detail, the columns with exceptionally good jointing and alignment, and the decorative panels in the frieze of the third story all demonstrate the effective design resulting from a consistent and careful handling of terra cotta. The unusually large Ionic capitals are made in one



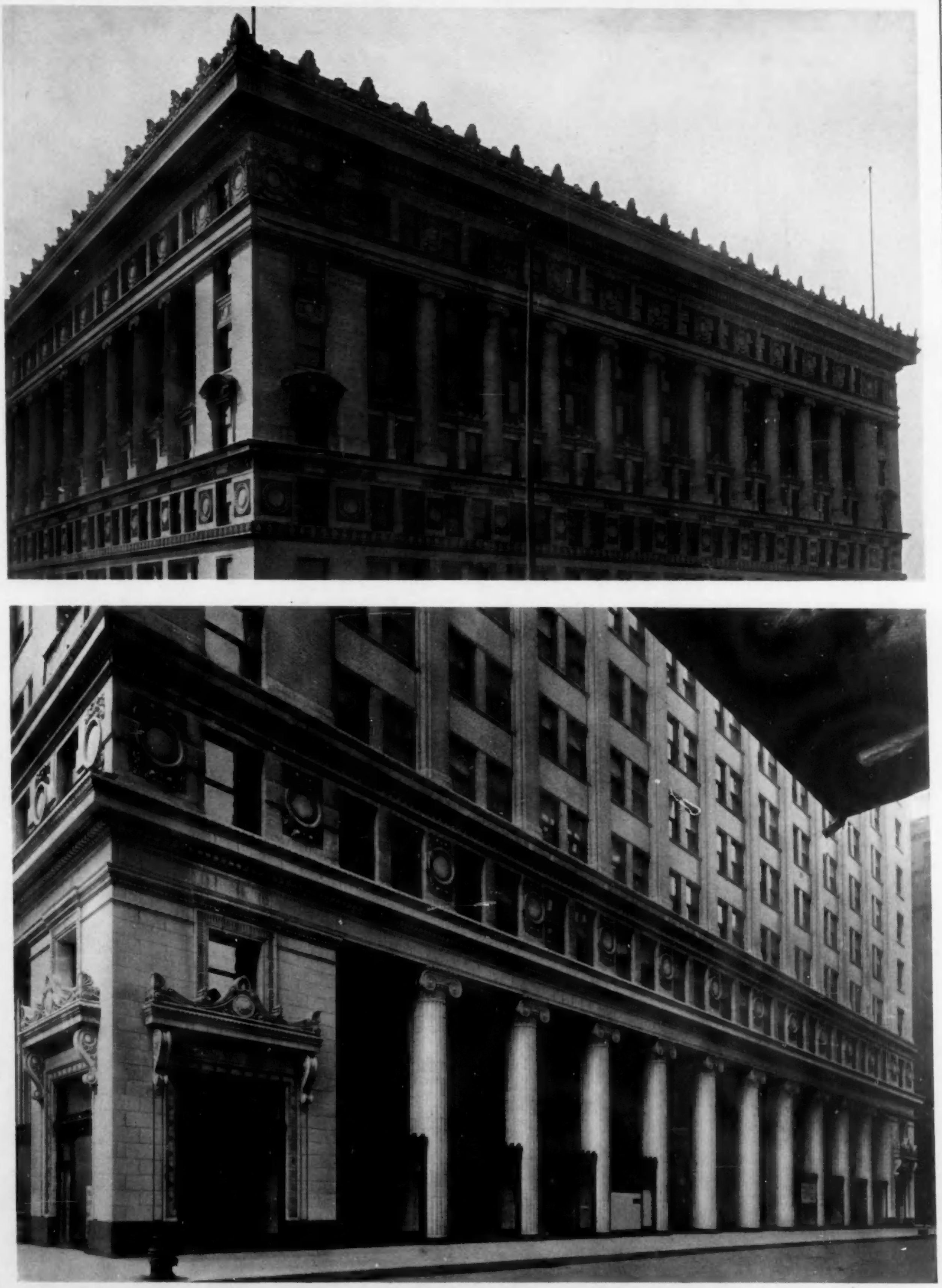
FIRST FLOOR PLAN.



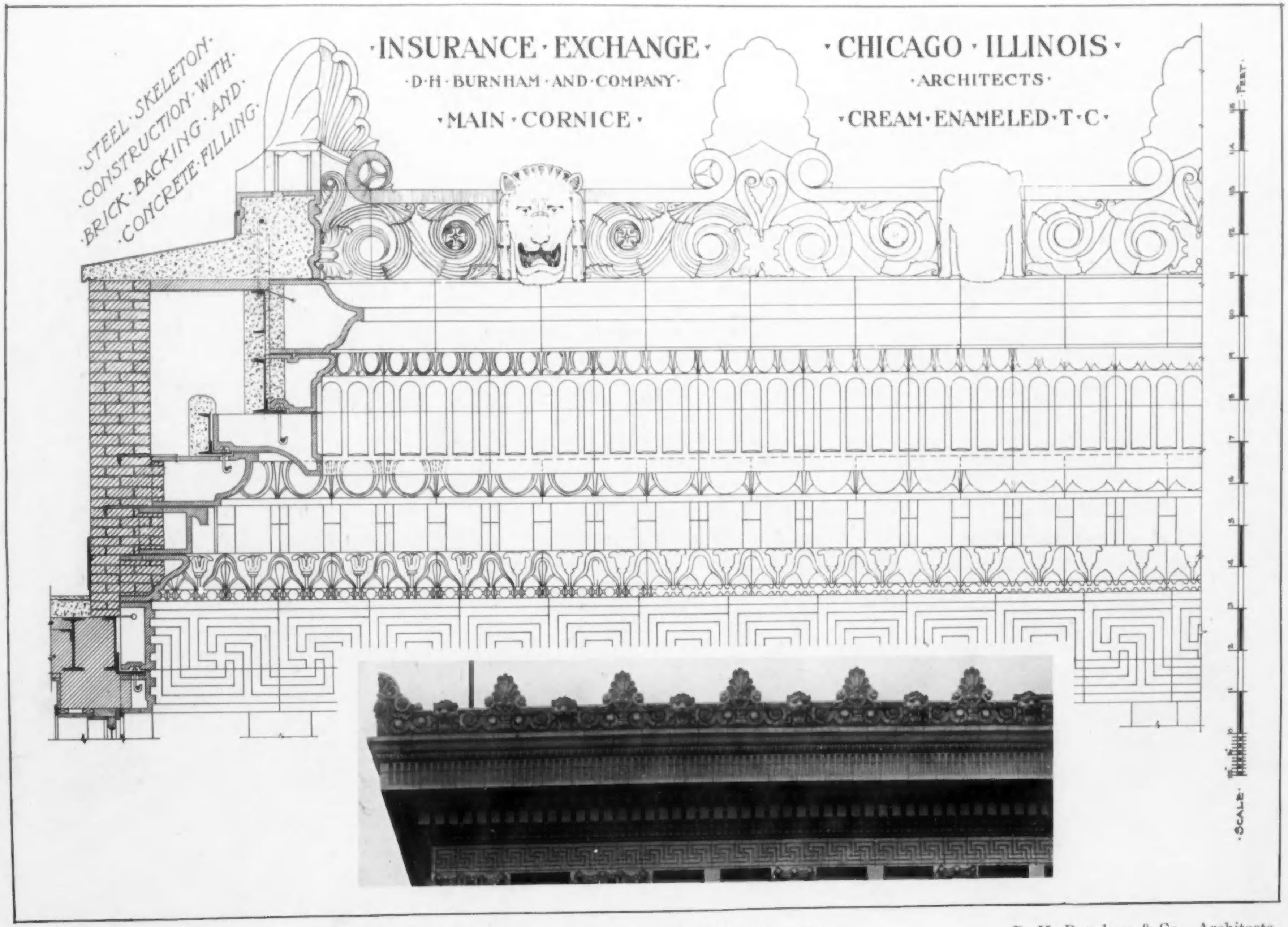
SECOND FLOOR PLAN — BANK FLOOR.



FOURTH AND TYPICAL FLOOR PLANS.



UPPER AND LOWER STORIES, INSURANCE EXCHANGE BUILDING, CHICAGO, ILL.
D. H. Burnham & Co., Architects.



Terra Cotta Details. INSURANCE EXCHANGE BUILDING, CHICAGO, ILL. D. H. Burnham & Co., Architects.

single piece and evidence the wonderful strides this material has made during the past few years.

The enameled brick employed in the shaft from the fourth to the thirteenth stories in conjunction with the terra cotta furnish the salient lines necessary to the dignity of the building. Here is exemplified the adaptability of both materials in carrying out the decorative effect of tall structures which owe their effectiveness to the combined result of color and texture. This also furnishes an excellent example of the satisfactory results accruing from the proper recognition of the design and the nature of the material. It is fundamental in good architecture, and while such a treatment does not necessarily produce a fine design it at least prevents the architect from violating the logic of building construction. Here the architect has grasped the thought and has made his materials expressive of their own possibilities, strength, and characteristics.

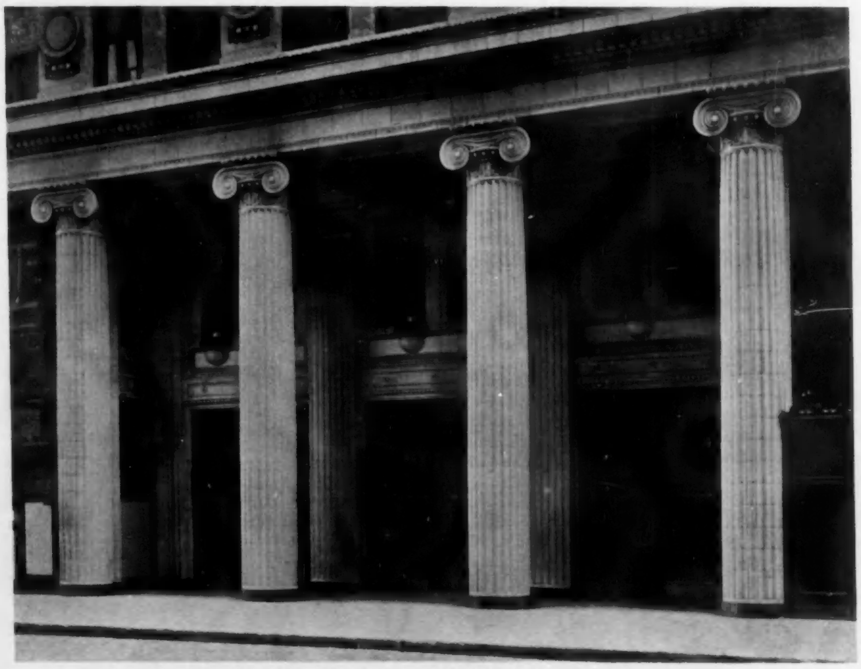
VIEW OF ROTUNDA.

DETAIL OF ENTRANCE.

The top stories and cornice, more elaborate and ornamental than the rest of the façade, are treated as a complete architectural order. The effect, while somewhat similar in design to the first three stories, is enhanced by the delicate and refined nature of the terra cotta details. The cornice projection is held back in order to give a skyline to the building and become a living part of the decorative motives just beneath.

The entrance vestibule is of cream-white enameled terra cotta with the details and proportions carefully executed. From here you pass through the elevator lobby into the rotunda. Two entrances toward the rear of the building also lead to the rotunda, which is 74 by 104 feet, having a mezzanine floor supported by a colonnade. The central light court is 72 by 73 feet in area with walls of a white enameled brick, while the main lobby and halls are lined with full enamel terra cotta.

Many other examples, as well as the Insurance Exchange Building, show how the American architects are adapting the principles of design to the materials and vice versa; a spirit which is fast developing a national type of architecture. To sound logic in the use of materials they are adding their imaginative creations, a sense of harmony and proportion, form and color; all guided by the fundamental principles of sound and reasonable construction. This building marks one more step forward in the progress of architecture in America.



DETAIL OF FIRST AND SECOND STORIES.

Editorial Comment and Miscellany.

PLATE ILLUSTRATIONS — DESCRIPTION.

THE LITTLE THEATRE, NEW YORK CITY. PLATES 49–52. The exterior is of red brick, limestone, wood painted white, and iron-work in a flat black. The façade is illuminated by a system of indirect lighting. Upon the interior the vestibule is treated in wood and plaster after the Georgian period. The auditorium, with a seating capacity of 300, is finished in birch of a deep walnut brown tone with panels for tapestries. The seats are upholstered in brown leather, the curtains of a Gobelin blue, and the carpet gray. Ceiling candelabra with indirect lights together with wall brackets furnish the lighting. The unusual features upon the interior are the revolving stage, 30 feet in diameter, and the location of the curtains in front of the proscenium wall. The heating is by the fan system.

THE DIAMOND RUBBER COMPANY BUILDING, BOSTON. PLATE 54. The exterior is of light gray brick with considerable texture, limestone trimmings, and cast iron painted a gray-green. Upon the interior the salesroom extends through two stories, with a gallery to accommodate the bookkeeping department. The room is finished in light gray ash, the large wall panels are of plaster tinted a gray-green, while the ceiling is in low relief ornamented with ovals and diamonds. The floors are of red birch. The third story accommodates the offices, with lofts above. The total contents of the building are 400,000 cubic feet, and cost $0.28 per cubic foot.

THE PEERLESS MOTOR CAR COMPANY BUILDING, BOSTON. PLATE 55. The exterior is of red brick and limestone with bays designed in natural copper. The salesroom is finished in mahogany, and a marble mosaic floor. The second-story offices are also decorated in mahogany. The floors above the second are used for lofts, storage rooms, and machine repairing shops. The contents of the building are 950,000 cubic feet, and cost approximately $0.20 per cubic foot.

ENTRANCE TO THE ESTATE AT SOUTH ORANGE, N. J.
Illustrated in the Plate Forms. Grosvenor Atterbury, Architect.

DETAIL BY GEORGE A. BOEHM, ARCHITECT.
South Amboy Terra Cotta Company, Makers.

APARTMENT HOUSE, 116 E. 58th STREET, NEW YORK CITY. PLATE 56. In the general arrangement of the plan long halls were avoided, the entertaining rooms grouped together, the bedrooms arranged in a separate group, and the servants' rooms and kitchens placed apart from the balance of the apartment upon a court. The entrance hall is of Caen stone, the interior finish throughout is of white enamel of the Georgian period, the fireplaces are of Moravian tile, and the kitchens have walls of white glazed tile and floors of non-absorbent cork tile. The rental of suites ranges from $1,000 to $3,000.

BRICK VERSUS WOOD.

IF THERE is one question being debated more than another in the building world at the present time, it is the one which relates to the comparative costs of brick and frame construction for houses. In this connection it is interesting to note the experience of the firm of Hansberger & Livingston, builders, Columbus, Ohio. Concerning this matter they say:

"We have built about six hundred houses in the city of Columbus. The first year we built entirely of frame, the second year about half brick and half frame, and then we figured out the cost between brick and frame houses and found that the actual difference did not exceed $400 on a $5,000 house, or about eight per cent more for brick than for frame.

"We built most of our houses with a 9-inch wall and 1-inch air space, tying the two walls together with metal ties and furring, lathing, and plastering on the inside.

"Taking the saving in insurance, heating, and painting on the brick house we have found that there really is no difference in the cost of the house at the end of a few years, and we now build brick houses almost altogether.

"When we come to sell the house, we find that we always can get about $1,000 more for the brick house than for the frame house on account of the beauty, durability,

and economy, which always seem to speak for themselves. The brick house looks so much more substantial than the frame house that we now are using brick every time.

"The brick house is much cooler in summer than the frame house and we have tested the heating in winter and find that it takes thirty-three per cent more fuel for a frame house than for a brick house."

AMALGAMATION OF AMERICAN SCHOOLS IN ROME.

PROF. JESSE BENEDICT CARTER, Director of the American School of Classical Studies, says in his annual report that the amalgamation of the American School of Classical Studies with the American Academy, forming together a great and unique institution of American learning in the Eternal City and placing it on one of the most beautiful spots on the top of the historic Janiculum, is the realization of the organization's most cherished ideal. Professor Carter also announces in his report that another nation may soon follow the American example of amalgamating its schools in Rome. He evidently refers to England, who has already made arrangements for transferring the British School, now at the Palazzo Odescalchi, to the beautiful building erected to house the collection of paintings for the exhibition last year. To the British School, which so far has dealt with archæology and classical studies, will be added work in the fine arts.

COAT OF ARMS OF CANADIAN PROVINCES.
Executed in buff terra cotta by the Atlantic Terra Cotta Company for the Herald Building, Montreal.
David R. Brown & Hugh Vallance, Architects.

An interesting passage of the report is a quotation from the Librarian, Mr. Van Buren, who says that in the last year the number of volumes in the library grew from 6,896 to 7,350, while the periodicals have increased from 54 to 79.

INTERIOR ENTRANCE DETAIL.
Executed in buff terra cotta by the Atlantic Terra Cotta Company for the Herald Building, Montreal.
David R. Brown & Hugh Vallance, Architects.

EXTERIOR ENTRANCE DETAIL.
Executed in buff terra cotta by the Atlantic Terra Cotta Company for the Herald Building, Montreal.
David R. Brown & Hugh Vallance, Architects.

Professor Carter ends by paying a tribute to Herbert Fletcher de Cou, who for seven years had been connected with the schools, and who on March 11, 1911, was murdered by Arabs at Cyrene, Tripoli, concluding as follows:

"He lies in classical soil, even as he lived his life in the classic world. He died for those things which he held sacred — the love of ancient art and the loyalty of friendship."

FIRE LOSSES AND BUILDING LAW.

IN discussing the fire losses in and about Boston during the past year the *Boston Herald* says, editorially: "The fire loss last year in the cities and towns of the metropolitan park district was reported at $4,000,000. By English or European standards this loss would approximate $750,000. One obvious reason for so great a difference is in the prevalence of frame construction, especially for housing, both in this district and throughout the entire country. Foreign cities have large areas of fireproof construction and the rest not inferior to our so-called second-class buildings, with timbered floors and roofs, but incombustible walls and roof covering. They cannot afford our perishable frame construction, nor can we much longer in our cities and suburbs at the present rate of destruction by fire."

DETAIL FOR SCHOOL BUILDING, BROOKLYN, N. Y.
Brick, Terra Cotta & Tile Company, Makers.
C. B. J. Snyder, Architect.

CROISIC BUILDING, FIFTH AVE. AND 26TH ST., NEW YORK.
Body of building of Kittanning White Brick furnished by Pfotenhauer-Nesbit Company. Architectural terra cotta executed by New York Architectural Terra Cotta Company.
Browne & Almiroty, Architects.

NATIONAL TERRA COTTA SOCIETY.

THIS Society was formed by twenty companies of the East, Middle West, and West for the purpose of: Encouraging the production of the best material, and the maintenance of a high standard of work; spreading the knowledge of the many advantageous qualities of good architectural terra cotta through the medium of advertising and the publication of books, pamphlets, and other forms of trade literature; co-operating in the investigation and study of the more important technical and other problems of the business, and advancing the general interests of the terra cotta industry in every legal and proper way.

The officers of the Society are in the People's Gas Building, Chicago, Fritz Wagner, president, William D. Gates, secretary.

DETAIL BY JOHN D. ATCHISON, ARCHITECT.
American Terra Cotta & Ceramic Company, Makers.

TWENTY-SIX-STORY HOTEL, NEW YORK CITY.

THE New York Central and Hudson River Railroad Company and the New York, New Haven and Hartford Railroad Company will erect a $4,500,000 hotel on the block bounded by Madison and Vanderbilt avenues, 43d and 44th streets. It will have a frontage of 200.10 feet on the avenues and 215.8 feet on each street. The façade will be of brick, terra cotta, limestone, and granite. There will be two large banquet rooms and accommodations for about 1,200 guests. Twelve sets of tracks will run under the hotel, giving immediate access from the trains to the hotel without going to the street. The total height will be 305 feet. The architects are Warren & Wetmore.

DETAIL FOR THEATRE.
Conkling-Armstrong Terra Cotta Company, Makers.
Albert E. Westover, Architect.

THE town of Brookline, Mass., proposes the enactment of a law which will put an end to the use of shingles for roofs. The shingle roof is considered a menace to the community in the case of a conflagration. It is argued that tiles, slate, and other materials available for fire resisting roofs, if not actually falling in price, become every year more nearly within competitive reach, and that even where the first cost of these materials is greater than that of shingles their permanency makes them in the long run quite as inexpensive.

TERRA COTTA FOR THE INSURANCE EXCHANGE BUILDING.

THE architectural terra cotta for the Insurance Exchange Building, Chicago, D. H. Burnham & Company, architects, described in this issue, was furnished by the Northwestern Terra Cotta Company.

IN GENERAL.

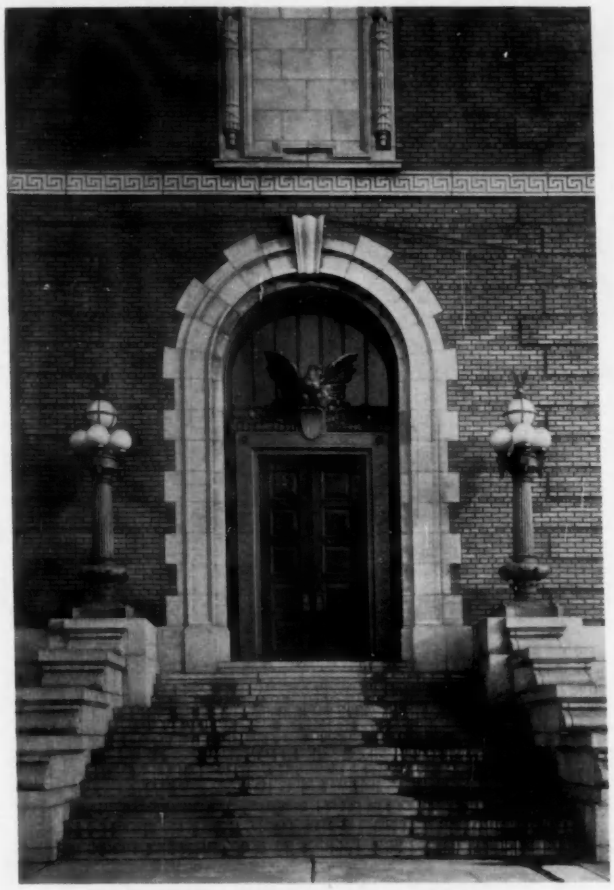
The architectural terra cotta for the Dayton Daily News Building, Albert Pretzinger, architect, illustrated in the Plate Form of this issue, was furnished by the Atlantic Terra Cotta Company.

The buildings of the new Mt. Saint Mary's Hospital to be built at Niagara Falls, N. Y., will be faced with impervious "Bradford Reds" furnished by the Bradford Pressed Brick Company. More than 500,000 bricks will be required.

J. H. Giesey has opened up offices for the practice of architecture at 514 Smithfield street, Pittsburgh. Manufacturers' catalogues and samples solicited.

The American Enameled Brick & Tile Company of New York has issued a new catalogue in which they describe and illustrate various sizes, shapes, and colors of the enameled brick which they manufacture. Other valuable data relating to the constructive uses of their bricks is given.

Charles F. Wright and John G. White have formed a copartnership for the practice of architecture, with offices at 812 New First National Bank Building, Columbus, Ohio.



DETAIL OF POST-OFFICE, ST. LOUIS, MO.
Gray brick furnished by the Hydraulic-Press Brick Company.
James Knox Taylor, Architect.

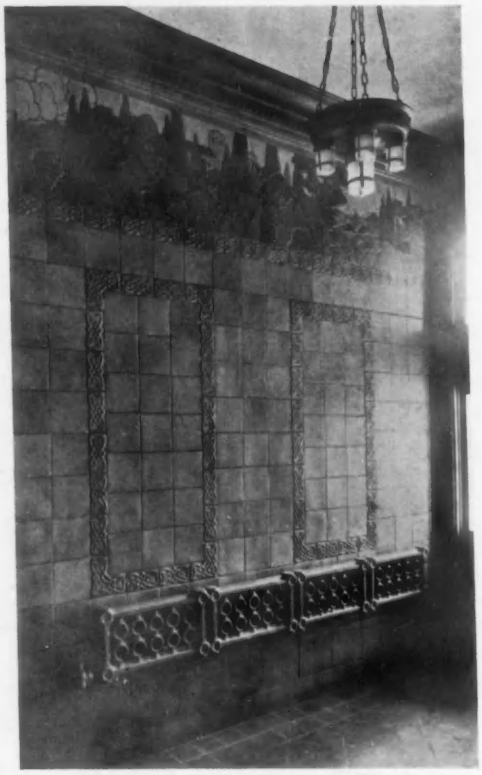
The South Amboy Terra Cotta Company furnished the architectural terra cotta for the larger of the two restaurants at Newark, N. J., illustrated on Plate 41 of THE BRICKBUILDER for March.

Carlyle Nisbet and A. Sidney Brown have opened offices for the practice of architecture at 311 Grand avenue, Macon, Ga.

The New York Architectural Terra Cotta Company will furnish the terra cotta for the new High School to be erected in the city of Albany, Messrs. Goldwin, Starrett & Van Vleck, architects.

Robert N. Cleverdon, successor to Cleverdon & Putzel, announces the removal of his offices to 4 East 42d street, New York City.

Shepley, Rutan & Coolidge, 122 Ames Building, Boston, announce that George C. Shattuck has been admitted to partnership in their firm.



FAIENCE WALL TREATMENT TO ENTRANCE OF APARTMENT HOUSE.
Executed by the Hartford Faience Company.
Russell F. Barker, Architect.

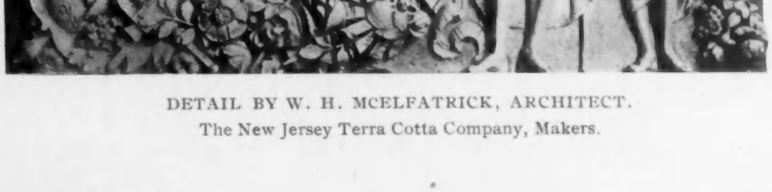
The Architectural League of America announces that for the year 1912–1913 four Scholarships are available, three in Harvard University and one in Washington University, St. Louis.

These Scholarships entitle their holders to free tuition for one year, the cost of such tuition being $150. The Scholarships will be awarded to those who stand highest in the competitions in design to be held in May, and who fulfil the other requirements. The competitions will be conducted in the various cities through the organizations affiliated with the League.

For further particulars apply to Albert E. Skeel, Rose Building, Cleveland, Ohio.

The statutory registration of architects is being advocated by The Society of Architects and the Royal Institute of British Architects. The majority of the members of both these architectural bodies favor the enactment of such a law. It is not unlikely that these two architectural associations will eventually be merged in one.

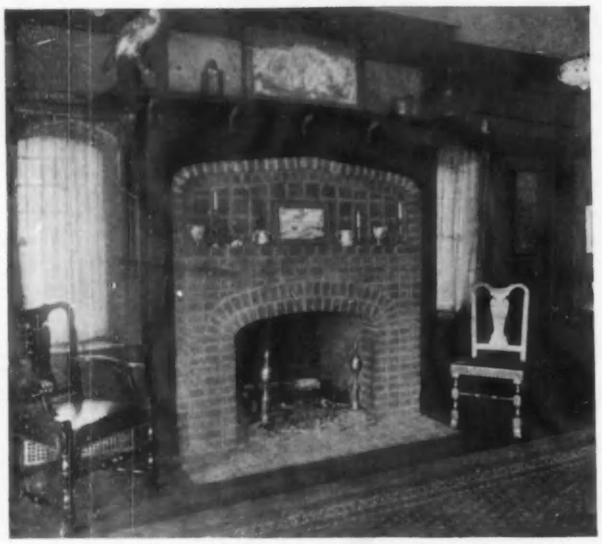
Hubert G. Ripley has been appointed architectural advisor to the City of Boston Art Commission. Among other duties



DETAIL BY W. H. MCELFATRICK, ARCHITECT.
The New Jersey Terra Cotta Company, Makers.

Mr. Ripley will have charge of the placing of statues in the Public Garden.

Report from recent discoveries in Pompeii reveal the fact that the excavators are working in a part of the city that was more deeply buried by the great eruption than was the portion hitherto uncovered. There were in Pompeii no tall buildings, but many, perhaps the majority of them, had second stories with balconies and porticos on the more important structures. Of these, till now, little more than hints or traces have been found, owing presumably to the fact that they were for centuries more or less exposed to the weather or to the many accidents and robberies that a shallow covering of ashes made possible. The city has been a mine of priceless treasures both for the archæologist and the student of the classics.



FIREPLACE BY GROSVENOR ATTERBURY, ARCHITECT.
Built of "Tapestry" brick furnished by Fiske & Company, Inc.

Clarence W. Wigington and William L. Bell have formed a copartnership for the practice of architecture with offices in the Karbach Block, Omaha, Neb.

Holabird & Roche have removed their offices from the Monadnock Block to the Monroe Building, 104 South Michigan Boulevard, Chicago.

School of Architecture
HARVARD UNIVERSITY

Summer Courses in Architectural Design

For circular giving details with regard to these courses, apply to Professor H. L. Warren, Chairman of the Department of Architecture, Harvard University.

BOILERS AND RADIATORS

MANUFACTURERS OF

Water Tube and Return Flue Boilers
Plain and Ornamental Direct Radiators
Direct-Indirect Radiators
Indirect Radiators

For Steam and Water Warming

Send for complete illustrated catalog

THE H. B. SMITH CO.

Westfield, Mass. New York
Philadelphia Boston

"TAPESTRY" BRICK

TRADE MARK—REG. U. S. PATENT OFFICE

BULLETIN

RECENT WORK, illustrated in this issue of THE BRICKBUILDER

Fireplace .... Page 114
GROSVENOR ATTERBURY, Architect.

FISKE & COMPANY INC
FACE BRICKS } ESTABLISHED IN 1864
FIRE BRICKS }

25 Arch St., Boston Arena Building, New York

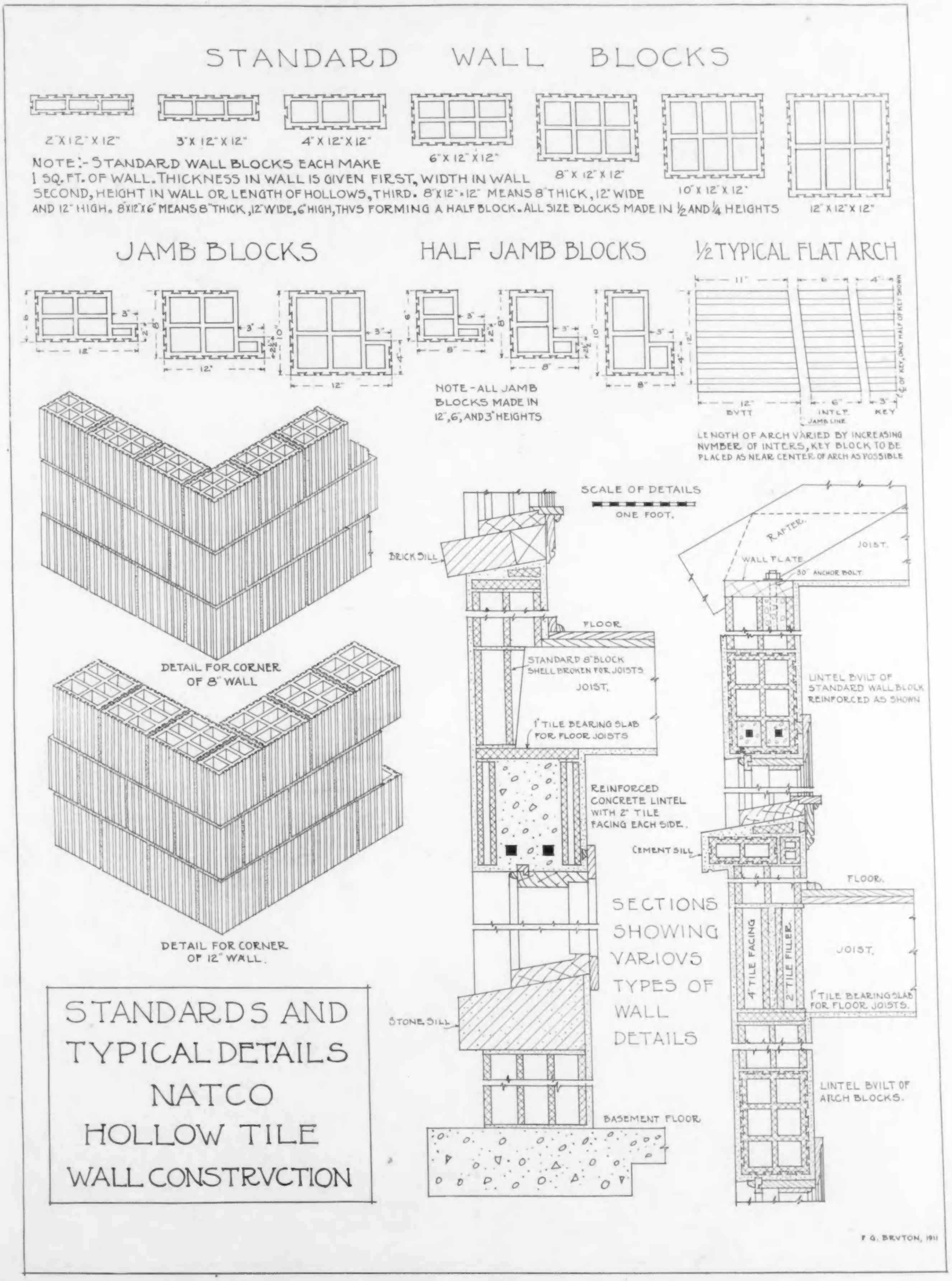
Linoleum and Cork Covering FOR CEMENT FLOORS

Linoleum secured by waterproof cement to concrete foundation can be furnished in plain colors or in inlaid effects.
Cork Carpet in plain colors.
Elastic, Noiseless, Durable.
Is practical for rooms, halls, and particularly adapted to public buildings.
Should be placed on floors under pressure and best results obtained only by employing skilled workmen.

Following are examples of our work:
Brookline Public Library. R. Clipston Sturgis, Architect.
Marshall Office Building, Boston. C. H. Blackall, Architect.
Boston State Hospital, Boston. Messrs. Kendall, Taylor & Co., Architects.

A small book on this subject, and quality samples, mailed on application. We solicit inquiries and correspondence.

JOHN H. PRAY & SONS CO.
Floor Coverings—Wholesale and Retail
646-658 WASHINGTON STREET - BOSTON, MASS.
Continuously in this business for 93 years


STANDARD WALL BLOCKS
2" X 12" X 12"
3" X 12" X 12"
4" X 12" X 12"
6" X 12" X 12"
8" X 12" X 12"
10" X 12" X 12"
12" X 12" X 12"
NOTE:- STANDARD WALL BLOCKS EACH MAKE 1 SQ. FT. OF WALL. THICKNESS IN WALL IS GIVEN FIRST, WIDTH IN WALL SECOND, HEIGHT IN WALL OR LENGTH OF HOLLOWS, THIRD. 8"X12"x12" MEANS 8" THICK, 12" WIDE AND 12" HIGH. 8"X12"X6" MEANS 8" THICK, 12" WIDE, 6" HIGH, THVS FORMING A HALF BLOCK. ALL SIZE BLOCKS MADE IN 1/2 AND 1/4 HEIGHTS
JAMB BLOCKS
HALF JAMB BLOCKS
1/2 TYPICAL FLAT ARCH
NOTE - ALL JAMB BLOCKS MADE IN 12", 6", AND 3" HEIGHTS
BVTT
INTER.
KEY
JAMB LINE
℄ OF KEY, ONLY HALF OF KEY SHOWN
LENGTH OF ARCH VARIED BY INCREASING NVMBER OF INTERS, KEY BLOCK TO BE PLACED AS NEAR CENTER OF ARCH AS POSSIBLE
DETAIL FOR CORNER OF 8" WALL
DETAIL FOR CORNER OF 12" WALL
SCALE OF DETAILS
ONE FOOT.
BRICK SILL
FLOOR
STANDARD 8" BLOCK SHELL BROKEN FOR JOISTS
JOIST.
1" TILE BEARING SLAB FOR FLOOR JOISTS
REINFORCED CONCRETE LINTEL WITH 2" TILE FACING EACH SIDE.
STONE SILL
BASEMENT FLOOR
SECTIONS SHOWING VARIOVS TYPES OF WALL DETAILS
RAFTER.
JOIST.
WALL PLATE.
30" ANCHOR BOLT.
LINTEL BVILT OF STANDARD WALL BLOCK REINFORCED AS SHOWN
CEMENT SILL
FLOOR.
4" TILE FACING
2" TILE FILLER
JOIST.
1" TILE BEARING SLAB FOR FLOOR JOISTS.
LINTEL BVILT OF ARCH BLOCKS.
STANDARDS AND TYPICAL DETAILS NATCO HOLLOW TILE WALL CONSTRVCTION
F. G. BRVTON, 1911

COMPETITION FOR A SMALL HOUSE.

To Be Built of Natco Hollow Tile. Cost not to Exceed $4,000.

FIRST PRIZE, $300. SECOND PRIZE, $200. THIRD PRIZE, $150.
FOURTH PRIZE, $100. MENTIONS.

PROGRAM.

THE problem is a small, detached house, the walls and foundations of which are to be built of Natco Hollow Tile. Competitors may adopt the Bungalow type of house if they so desire, since the material will meet readily the requirements of such a design.

At least three bedrooms and ample basement room are to be provided for in the plan. Two bedrooms and bath are to be on the first floor. The third bedroom may be on first floor or in attic.

The location may be assumed in any town, small city, or suburb of a large city.

The cost of the house — exclusive of the land — shall not exceed $4,000. The method of heating, the plumbing, other fixtures, and finish, to be governed by the limit of cost.

The cost of the house must be figured at $.20 per cubic foot. Measurements of the house proper must be taken from the outside face of exterior walls and from the level of the basement floor to the average height of all roofs. Porches, verandas, and other additions are to be figured separately at one-fourth (25 per cent) of their total cubage. The cost of porches, etc., is to be included in the total cost of the house ($4,000).

On this basis of figuring — the number of cubic feet multiplied by the cost per cubic foot — *the jury will not consider any designs which exceed the limit of cost.*

All cubage and other dimensions will be carefully checked before the drawings are submitted to the jury.

On the drawing in a space measuring 6 inches by 5 inches — enclosed in rules — is to be given, at a size which will permit of two-thirds reduction, the cubage of the house multiplied by the cost per cubic foot, and the various items with costs which go to make up the total cost of the house.

The particular object of this Competition is to encourage the use of Natco Hollow Tile in small houses. The cost of this type of construction will be found to be in most parts of the country but little over that of first-class frame construction, and it is a fact that any mason of average ability can easily do the work.

The one marked tendency of the times is for better construction in houses. It is a subject which is being agitated by able writers in the magazines and the daily press. Insurance Companies, Boards of Trade, and other bodies interested in the public welfare are giving their support to the movement. It is believed that a Competition such as this will encourage a study of a type of construction which, although comparatively new, has, nevertheless, met all the demands put upon it with respect to æsthetic considerations, facility of construction, and cost.

CONSTRUCTION.

The following suggestions are offered as being practicable and admissible.

First. Outside walls may be of Natco Hollow Tile 8 inches thick (8 inches by 12 inches by 12 inches). Foundation walls, below grade, should not be less than 12 inches thick. The blocks being heavily scored on two sides, stucco may be used for an outside finish, and plaster applied direct to the block for interior finish.

Second. The walls may be built double, using in the outside wall a 4-inch hollow tile, and on the inside a 6-inch tile. The treatment of the face of such a wall, and the manner of bonding the outer and inner walls, are left to the designer.

The floors and roof need not be of fireproof construction.

DRAWING REQUIRED. (There is to be but one.)

On one sheet a pen and ink perspective, without wash or color, drawn at a scale of 4 feet to the inch. Plans of the first and second floors at a scale of 8 feet to the inch. A section showing construction of exterior wall with cornice. Heights of floors to be given on section. Enough detail sketches to fill out sheet. In connection with the plan of the first floor show as much of the arrangement of the lot in the immediate vicinity of the house as space will permit. The plans are to be blocked in solid. A graphic scale must accompany the plans. The character of the exterior finish must be clearly indicated on the perspective and detail.

The size of the sheet is to be exactly 26 inches by 20 inches. Plain black border lines are to be drawn on the sheet 1 inch from edges, giving a space inside the border lines 24 inches by 18 inches. The sheet is to be of white paper and is not to be mounted. Very thin paper or cardboard is prohibited.

The drawing is to be signed by a *nom de plume* or device, and accompanying same is to be a sealed envelope with the *nom de plume* on the exterior and containing the true name and address of the contestant.

The drawing is to be delivered flat, or rolled (packaged so as to prevent creasing or crushing), at the office of THE BRICKBUILDER, 85 Water Street, Boston, Mass., on or before June 25, 1912.

Drawings submitted in this Competition are at owners' risk from time they are sent until returned, although reasonable care will be exercised in their handling and keeping.

The designs will be judged by three or five members of the architectural profession representing different sections of the country.

First consideration will be given to the fitness of the design, in an æsthetic sense, to the material employed; second — the adaptability of the design, as shown by the details, to the practical constructive requirements of the material; third — excellence of plan.

Drawings which do not meet the requirements of the program will not be considered.

The prize drawings are to become the property of THE BRICKBUILDER and the right is reserved by THE BRICKBUILDER to publish or exhibit any or all of the others. The full name and address of the designer will be given in connection with each design published. Those who wish their drawings returned, except the prize drawings, may have them by enclosing in the sealed envelopes containing their names, ten cents in stamps.

Drawings submitted in this Competition will be returned direct from the office of THE BRICKBUILDER to the contestants.

For the design placed first there will be given a prize of $300.
For the design placed second a prize of $200.
For the design placed third a prize of $150.
For the design placed fourth a prize of $100.

This Competition is open to every one.

The prize and mention drawings will be published in THE BRICKBUILDER.

This Competition is conducted under the patronage of the National Fireproofing Company.

On the preceding page will be found examples of construction which may be helpful to competitors.